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ABSTRACT

This document consists of six issues of the ARL (Association of Research Libraries) Newsletter, covering the year 2001. Each issue of the newsletter includes some or all of the following sections: "Current Issues," reports from the Office of Scholarly Communication, Office for Management Services, and Coalition for Networked Information, "Federal Relations," "Statistics and Measurement," "Diversity," "ARL Activities," and a calendar of events. Topics covered include: the handbook "Declaring Independence: A Guide to Creating Community-Controlled Science Journals"; ALA and ARL file brief in the case "Tasini v. New York Times"; the Uniform Computer Information Transactions Act; ARL salary survey for 2000-2001; recent Systems and Procedures Exchange (SPEC) publications; Leadership & Career Development Program's call for nominations and applications; the Big 12 Plus Libraries Consortium meeting in Tempe Arizona to discuss the "Principles for Emerging Systems of Scholarly Publishing"; recent innovations of scholarly communication in economics; ARL-sponsored symposium "The New Culture Service Quality"; the university in a digitized, commercialized age; metadata harvesting and the Open Archives initiative; competition in scholarly journal publishing; the state of diversity in research libraries; the paths to reform scientific publishing; the Collaborative Digital Reference Service; and the ARL E-Metrics project. (AEF)

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Nos. 214-219, Feb 2001-December 2001

By: G. Jaia Barrett, Ed.

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ARL

A BIMONTHLY REPORT ON RESEARCH LIBRARY ISSUES AND ACTIONS FROM ARL, CNI, AND SPARC

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DECLARING INDEPENDENCE

by Alison Buckholtz, SPARC Assistant Director, Communications

SPARC and the Triangle Research Libraries Network (TRLN) have launched *Declaring Independence: A Guide to Creating Community-Controlled Science Journals*, a how-to handbook and website that guides editors and editorial board members of scientific journals toward responsible journal publishing. To see the site or download a PDF version of the handbook, please visit: <http://www.arl.org/sparc/DI/>.

As librarians know, many editors and editorial board members of STM journals are unaware of the serials crisis; more to the point, they are unaware they may be part of a journal whose high cost and unsatisfactory policies contributes to the serials crisis. *Declaring Independence* presents this issue in a straightforward way to researchers who may wonder what their responsibilities are and how best to change the status quo.

Declaring Independence is divided into three sections: the first helps researchers determine whether or not their journal serves its community; the second presents alternative publishing options; and the third guides researchers through an evaluation process of these alternative options. There are also extensive web resources and journal pricing charts included in the appendices, along with a bibliography.

SPARC's goal in producing this handbook is to back up librarians' excellent educational efforts on campus. *Declaring Independence* is a complement to the energetic work many have already undertaken vis a vis SPARC and the Create Change campaign. The following pages present excerpts from the handbook that describe how an editor may assess if their journal is serving its community, and if not, what alternative publishing options exist.

DECLARING INDEPENDENCE

The *Declaring Independence* handbook can be ordered free of charge by writing to <pubs@arl.org>.

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DECLARING INDEPENDENCE: A GUIDE TO CREATING COMMUNITY-CONTROLLED SCIENCE JOURNALS - EXCERPTS

STAGE 1: DIAGNOSIS

Does Your Journal Meet Its Primary Goal—To Serve Its Community?

As an editor or editorial board member of a scientific, technical or medical (STM) journal, you may be relatively unaware of subscription patterns and pricing histories in the journal publishing industry. After all, your primary job is to focus on journal content—to make sure that the latest and best research is published. And when societies published most research, it was assumed that they were managing and pricing the journals with an eye toward reaching their intended audiences around the world.

But the reality today has changed. Some publishers charge readers too much money for the journals they publish. That has led to broad scale subscription cancellations and narrower dissemination. More and more editorial boards have found that they must become seriously involved in the business aspects of their commercially-published journals if they are to be sure these essential publications remain accessible to their intended communities.

Is your journal truly serving its community? The following diagnostic guide will help you explore this question. If your answer is an unqualified yes, completing the guide will affirm for you that you are on the right track and help you plan your future. If your yes is qualified, you may have issues to raise with your publisher and/or points to negotiate when you renew your contract.

If your answer is no, please explore some of the alternatives to commercial publication presented in Stage Two and consider the steps toward **Declaring Independence** presented in Stage Three.

Diagnostic Guide

Journal performance can be determined by four general measures:

1. **Pricing and Financial History.** Is the journal fairly priced? Is the contribution your journal makes to the publisher's overhead and profit reasonable or excessive?
2. **Circulation and Renewal History.** Has circulation been rising or falling? What do subscription renewal patterns look like and has this been affected by annual price increases?
3. **Production Process.** What are the typical components of your journal's production process, how long does a typical production cycle take and how much does it cost? Is there a way to make it more efficient and pass the savings on to subscribers?
4. **Performance of the Publisher.** As an editorial board, are you satisfied with your relationship with your publisher and with the way the publisher is operating the business side of your journal?

Pricing and Financial History

- What are the individual and institutional subscription prices for the journal? Examine the gap between these prices if they are different. How do prices for your journal compare with similar journals in your field? Are subscribers getting their money's worth when they pay for your journal?
- What is the average annual price increase over the last ten-year period? How does it compare with standard measures of inflation? As you consider various pricing projections over the next five to ten years, what is your sense of pricing's impact on dissemination over time?
- For most commercially published journals, the publisher traditionally controls subscription rates. Are prices determined by number of pages or another method? If by page numbers, are price increases outstripping (rather than keeping pace with) the increase in content?
- Overall, what is the objective of the pricing approach? How does this compare to the editorial board's objectives for the journal?
- Aside from subscription rates, what are the journal's other revenue sources (page charges, color charges, advertising, reprint income, royalties, etc.) and how does this fit into the publisher's pricing policy?
- How many subscriptions were needed to break even last year? Your publisher should be able to tell you the break-even point.
- What is the breakdown of all the operational costs? How much is spent on the publisher's editorial operations? On printing? On marketing? How much is allocated for the publisher's own general and administrative (overhead) costs?
- How much profit does the publishing company make annually? How does the overall margin compare to that of your journal?

Circulation and Renewal History

- What is the breakdown between individual and institutional subscriptions and between the revenue generated from these two different sources?
- What is the ten-year trend in subscriptions? If there have been changes, what are the causes?
- What is the cancellation history? Has the cancellation

rate been rising or declining? If rising, what are the causes? What is the outlook for the next five to ten years?

Production Process

- What is the average time required for copy editing, composition, pre-press operations, and printing? Do these times seem reasonable in comparison with similar journals?
- What is the turnaround time for peer review, and does the publisher handle this function? Is the system automated? Is someone on the editorial board monitoring the process to make sure it is completed in a timely way?
- What is the overall turnaround time from article submission to publication?

Performance of the Publisher

Whether your editorial board operates on behalf of a society or otherwise, your agreements and/or contracts with the publisher are key to your satisfaction. You may have several agreements to consider, based on your editorship or contribution to the journal. Typically, there will be a publishing agreement between the publisher and the society whose journal it produces; an editor's agreement, which may or may not outline remuneration; and an agreement pertaining to article rights of individual contributors. Read each contract carefully. Does it spell out the publisher's responsibilities to your satisfaction? Offer adequate control for the society? Administrative support? Finally, be especially watchful of the non-competitive clauses and their restrictions. In addition to whatever non-competition restrictions may exist under applicable state law, some of these clauses can prevent the editor from performing any work for another journal as well as any promotional activity for several years after termination of the contract. It is generally best not to agree to any non-competition clauses following the termination of your contract.

For a detailed checklist on evaluating publisher agreements, see the Create Change website www.createchange.org. The following questions are merely starting points.

- Who owns the journal title? The titles of journals—especially prestigious journals—are very valuable commodities. If there is a major change in the publisher, the editor, or the editorial board, what happens to the title?
- What is the stance on copyright? Does the publisher hold control over all rights in the present and the indefinite future? All over the world? In all forms, even those not yet invented? In many written agreements, publisher rights and privileges can be breathtakingly comprehensive. Authors should expect to retain adequate rights to personal distribution or re-use of their own work.
- What is the publisher's archiving policy? Is the publisher committed to maintaining digital archives in a way that will guarantee perpetual access? Will there be continual migration to higher platforms? Under what circumstances are archives accessible to subscribers and researchers?
- The majority of scientific journals are being published in electronic form. How does the price of the electronic edition compare with the print? Does your publisher plan to move to purely electronic distribution? Will you be consulted about whether and under what conditions the journal will be available electronically?
- What is the publisher's policy and practice in the licensing of electronic versions of the journal? Does it provide the kind of generous access that you want your journal to have? Does your society receive fair royalties?
- Editorial boards have a right to a certain level of service and quality of publication, and there are concrete steps you can take to make sure your journal receives what it deserves.

How to Use the Checklist

This checklist can be used by the editorial board in evaluating both the journal and the publisher's performance. Or it can be used as a guide by an external review panel, perhaps made up of some board members and other members of your association. Such a panel might consist of a veteran scholar in your field, a young scholar who is just establishing a reputation in your field, a highly respected author, representatives of key sub-specialties in your field and a representative of the international community. A subject-specialist librarian knowledgeable about data resources and alternative publication models would also be a useful member of the group.

Please adapt the checklist to your own needs and add your own questions as well.

STAGE 2: EXPLORING ALTERNATIVE OPTIONS

The preceding evaluation may have affirmed that your journal serves its community well. If not, you may want to explore alternative publishing options. Two of these options—university presses and scholarly societies—have a long history of journal publication in traditional paper formats. Now many of them have moved into electronic publication. You may also want to explore any number of electronic-only publication venues. Before you begin evaluating possibilities, consult your subject-specialist librarian, who will have up-to-date information on the latest options and will be happy to advise you. The advice of SPARC and/or a knowledgeable consultant can also be invaluable in effecting a major transition and minimizing risk to the journal during the process.

University Presses

Approximately fifty university presses publish journals. To begin your investigation of the university press option, contact the university press on your own campus. The Association of American University Presses' (AAUP) Online Catalog (aaup.uchicago.edu) can also help you identify university presses whose publishing programs may offer a good fit for your journal. Though most university presses focus on book publication, altogether they currently publish more than 700 scholarly journals, according to the AAUP. (Often, subject areas correlate to the strengths of their book programs.) Eight university presses account for the bulk of journal publication. These are:

- Cambridge University Press
- Duke University Press
- The Johns Hopkins University Press
- The MIT Press
- Oxford University Press
- Scandinavian University Press
- The University of California Press
- The University of Chicago Press

Certain projects of these presses have attracted a great deal of attention for their innovative approaches to scholarly communications and cost-recovery pricing models promoting wider dissemination:

- The MIT Press launched some of the earliest electronic-only journals (automated from author submission to dissemination) in addition to MIT CogNet, a "virtual" scholarly community in the cognitive sciences.
- Project Muse (Johns Hopkins University) is a collaboration between the JHU Press and the Milton S. Eisenhower Library. The project provides online the full texts of over 168 scholarly journals in the arts and humanities, social sciences, and mathematics. It is now building a scientific journals program. Overall, twenty-five not-for-profit publishers and scholarly associations are involved with Project Muse.
- University of Chicago Press Online makes available online *The Astrophysical Journal*, the premier journal of the American Astrophysical Society, in addition to nearly 50 other journal titles.

Scientific Societies

Many scientific societies have internal publishing programs that produce at least one journal. The primary purpose of a society's publishing program is to contribute to the development of knowledge within a field of science and to offer sound and reliable sources of information to its members. Societies also assume an obligation to the larger community of scientists in their discipline. Many society mission statements cite the broadest possible dissemination of scientific information as a prime directive for their programs.

By evaluating a society's scope, size, and publishing success, scientists exploring publishing options can determine whether there is a good fit with a society publisher. Societies can offer editorial support and manage the business side of publishing a print or electronic journal. They also offer a very special attraction—direct contact with a sizeable portion of the practitioners in any given area of science through their memberships.

Digital Initiatives from Academe

Several projects have been launched within academe to support the electronic dissemination of STM information. In some of these cases, university libraries have undertaken digital projects in connection with scholarly associations, individual journal titles, and informal groups of scholars. Examples include:

International Consortium for Alternative Academic Publication (ICAAP)

Based at Athabasca University in Canada, the ICAAP was founded to provide support for current and potential journal publications by hosting journals and furnishing final production assistance such as markup language tagging and copyediting.

For more information: www.arl.org/newsltr/200/sosteric.html or www.icaap.org.

eScholarship

Based at the University of California and hosted at UC's California Digital Library, eScholarship is dedicated to facilitating scholar-led innovation in scholarly communication through experimentation in the alternative production and dissemination of research. The core components are:

- Disciplinary e-print knowledge archives.
- Tools for submission, review, discovery, access, and use of scholarship.
- Innovative repackaging of e-print archives into digital journals and other compilations.
- Alerting, citation, and annotation services for scholars.
- Integration and summarization services for students.

For more information: escholarship.cdlib.org.

Project Euclid

Focused on independent, non-profit journals in mathematics and statistics, Project Euclid is a partnership between the Cornell University Mathematics Library and the Duke University Press. It supports all functions in scholarly publishing from preprints to the electronic distribution of published journals. Three modules provide a seamless stream of services:

- Preprint server (fast dissemination of research)
- Editorial toolkit (peer reviewing and editing)
- Journal publishing (translation into the electronic environment)

For more information: projecteuclid.org

Columbia Earthscape

Columbia Earthscape is a project of Columbia University's Electronic Publishing Initiative at Columbia (EPIC) in collaboration with scholars and research institutions. Earthscape selects, gathers, edits, and links the widest range of resources available online in Earth-systems science. EPIC also produces Columbia International Affairs Online (CIAO), a comprehensive online source for theory and research in international affairs. It publishes a wide range of scholarship from 1991 to the present that includes working papers from university research institutes, occasional papers series from non-governmental organizations, foundation-funded research projects, and proceedings from conferences.

For more information: www.earthscape.org or www.ciaonet.org.

Government Projects

National Research Council/Canada Institute for Scientific and Technical Information

Canada's National Research Council (NRC) provides expertise through the NRC Research Press in a number of publishing areas, such as full editing and production services for journals, co-publishing arrangements, assistance in developing electronic publications, electronic distribution, and subscription services. These services are enhanced and supported by one of its major goals: "Developing, adapting, and launching new technology-enabled applications, tools, and systems such as ... modern publishing systems and electronic infrastructure components to meet the challenges of the fast-paced, volatile STM information environment."

For more information: www.cisti.nrc.ca.

PubMed Central

The U. S. National Institutes of Health launched PubMed Central and began accepting articles in January 2000. The site is a "barrier-free" repository of peer-reviewed primary research reports in the life sciences. The main criterion for acceptance is that the material be "contributed by journals currently indexed by one of the major abstracting and indexing services, or journals that have three or more research grant holders from major funding agencies on their editorial boards." However, this is a minimum requirement for new journals, and interested editorial boards are encouraged to examine the site in detail.

For more information: www.pubmedcentral.nih.gov.

Departmental Hosting

Some university departments have begun to host e-journals related to their discipline, and this generally allows these journals to be distributed at no cost due to minimal overhead charges. The University of Warwick (UK) mathematics department, for example, launched *Geometry & Topology* in 1997. The department publishes the journal electronically, at no cost, and makes a print version available through a partnership with International Press. The University of Warwick's math department has also announced plans to publish the new e-journal *Algebraic and Geometric Topology*. Another example is *Documenta Mathematica*, launched in 1996 at the University of Bielefeld (Germany). *Documenta Mathematica* produces its issues electronically (free of charge) and in print, and the annual print version is distributed by a company that sells it for less than 10 cents per page. *New York Journal of Mathematics* employs a similar model.

For more information: www.maths.warwick.ac.uk/gt, www.mathematik.uni-bielefeld.de/documenta, www.mathematik.uni-bielefeld.de/~rehmann/bericht-eng.html, math.albany.edu.

Commercial Ventures

Several researcher-friendly commercial ventures have entered the marketplace during the past few years in an effort to serve the scientific community. Some companies offer fast, efficient online publishing of research articles with full peer review and no barriers to access; most are run by editors who are supported by a growing number of researchers who act as advisers to the editorial team.

If you decide to investigate any of these models, you are ready to move on to Stage Three, which contains tools for evaluating all of your options.

Researchers today can take advantage of a wide range of alternative publishing options, from electronic-only journals to research aggregations to discipline-based servers—the biggest challenge is finding the right fit for your journal.

In February 2001, the Declaring Independence *handbook was mailed to about 1,400 editors and editorial board members of STM journals (based on the Create Change database of the 100 most expensive journals, located at <http://www.createchange.org/resources/journal.html>). It is also being distributed through scientific associations and at library conferences. Each SPARC and ARL library received five copies; any institution can order up to 50 additional copies, free of charge, by sending an e-mail to <pubs@arl.org>.*

FEDERAL RELATIONS

Prudence S. Adler, Associate Executive Director, Federal Relations and Information Policy

ARL, ALA FILE BRIEF IN TASINI CASE

ARL and the American Library Association filed a Brief *Amici Curiae* in the Supreme Court of the United States in the case *Tasini v. New York Times*. The case is about whether or not a newspaper or magazine that converts its print version to an online version has the right to include articles from freelance authors in commercial electronic databases when there is no permission from the author. In September 1999, the U.S. Court of Appeals for the Second Circuit, in a unanimous ruling by a three-judge panel, overturned a lower court decision in the case. The lower court had held that the defendant-publishers of commercial electronic databases did have the right to include the works of freelance writers in the full-text databases under Section 201(c) of the Copyright Law. Section 201(c) gives the owner of the copyright of the collective work a very limited right to reproduce and distribute the contribution.

In reversing the lower court ruling, the Appeals Court ruled that the reuse of a freelance author's work on CD-ROMs and in commercial electronic databases without the freelance author's permission was not within the scope of Section 201(c) and therefore constitutes copyright infringement. For many freelance writers, the appellate ruling that found in favor of the authors (led by Jonathan Tasini, President of the National Writers Union) represents a fair decision that helps to rectify past problems. The commercial electronic database publishers, however, claim that if this ruling is upheld, decades of electronically stored articles will have to be destroyed. Freelance authors in this case have not sought this form of redress from the courts; they do, however, seek fair compensation.

During the summer of 2000, the U.S. Supreme Court agreed to a request by the *New York Times* and other commercial publishers to consider the case. On February 16, 2001, ARL and ALA filed an *amicus* or "friend of the court" brief in this case, which is excerpted below. The brief refutes claims made by commercial electronic database publishers in this case, acknowledges that infringements have occurred, and proposes a way to balance the rights of authors, publishers, and users to provide a stable environment for making material available online. Oral arguments in this case are scheduled for late March.

Who's Who: In the ARL/ALA Brief, Petitioners *are The New York Times Co., Inc.; Newsday Inc.; The Time Incorporated Magazine CO.; LEXIS/NEXIS; and University Microfilms International.* Respondents *are Jonathan Tasini; Mary Kay Blakely; Barbara Garson; Margot Mifflin; Sonia Jaffee Robbins and David S. Whitford. The Brief Amici Curiae of ARL and ALA was filed in support of the respondents.*

Brief Amici Curiae of the American Library Association and the Association of Research Libraries in Support of Respondents—Excerpts

I. The "Electronic Archive" has not "Replaced" the "Physical Library"

A. Petitioners And Their Supporting Amici Portray Themselves As Modern Libraries When They Are Not

Petitioners and their supporting *amici* portray themselves as modern, multifaceted libraries, equating computer files with works in a library collection, and computer servers with library storage stacks. (Petitioners' Brief at 3, n.2.) These parties dramatically overstate their role as the nation's "electronic archives" and the extent to which the "physical library has been replaced by the electronic archive." (Publishers' Brief at 5.) Despite the utility and wide availability of commercial electronic databases, it is a misnomer to characterize them as "libraries" or "archives."

Commercial electronic database publishers are not "libraries" in some very fundamental respects. Although their rhetoric suggests that they are altruistic custodians of the nation's knowledge, open to all comers, this is not the case. Commercial electronic database owners are sophisticated business enterprises that derive substantial sums from licensing online electronic databases and CD-ROM products to end-users or institutional subscribers who make them available to their patrons. Those researchers and members of the public who are less affluent, and who are on the wrong side of the "digital divide" in this country, still rely and will continue to rely on traditional, "brick and mortar" libraries and archives. These institutions provide the public with access to works in allegedly outmoded and old-fashioned paper and microform copies, and likewise endeavor to provide the public with access to many electronic resources at low or no cost to the end-user. Such access is possible as not-for-profit libraries expend well over $2 billion per year for information resources.

There is no support for the sweeping claim that "the physical library has been replaced by the electronic archive." (Publishers' Brief at 5.) The "physical library" has been augmented, not "replaced," by electronic archives, just as traditional library services in general are being augmented by new forms of technology.[1] Institutional libraries remain vital to researchers and to our communities. "Libraries do not serve merely individual, informational, and recreational interests, but are part of the essential fabric of our society—its fragile cultural and social ecology." Arthur Curley, *Towards a Broader Definition of Public Good, in Libraries, Coalitions and the Public Good* 36 (E.J. Josey, ed., 1987).

B. Petitioners' Archival Claims Are Exaggerated

Use of the term "electronic archive" to refer to the Petitioners' products is also a misnomer. Electronic

SUPPLEMENT TO ARL BIMONTHLY REPORT #214, FEBRUARY 2001

UCITA

UNIFORM COMPUTER INFORMATION TRANSACTIONS ACT

SUMMARY AND IMPLICATIONS FOR LIBRARIES

THE ASSOCIATION OF RESEARCH LIBRARIES

SUMMARY

The Uniform Computer Information Transactions Act (UCITA) is a proposed state law that seeks to create a unified approach to the licensing of software and information. Two states—Maryland and Virginia—have passed UCITA, and it will be under consideration in many other states in the near future. UCITA' s broad scope and focus on software and information requires that the research, education, and library communities understand what the adoption of UCITA will mean for the mission, operation, and core values of the higher education and library communities.

BACKGROUND

UCITA has been under development for many years by the National Conference of Commissioners on Uniform State Law (NCCUSL). It is a very complex proposal, which makes difficult the full appreciation of all of the implications for the library and education communities. Throughout the drafting process, UCITA and its predecessor UCC2B (Uniform Commercial Code 2B)—the original effort to develop a new uniform legal framework in computer information transactions—were highly controversial to many diverse groups. Along with these other groups, the library community raised its concerns repeatedly during the drafting process. Unfortunately, the drafting committee did not address these concerns, and UCITA remains problematic to many both in the commercial and nonprofit sectors. Indeed, the American Law Institute, which initially collaborated with NCCUSL in the drafting of this uniform law, concluded that the law was so flawed that it abandoned its participation in the process. Furthermore, the attorneys general of 24 states signed joint letters raising serious substantive concerns with the potential adverse impact of UCITA on users of software and other information products. Similarly, the Federal Trade Commission filed comments critical of the proposal. Not withstanding these concerns, NCCUSL approved UCITA in July 1999 with the expectation that states would rapidly enact it uniformly, without modification.

UCITA has moved ahead in a number of states. Following extensive discussions and prior to passage, the Maryland General Assembly made some helpful changes to UCITA. Virginia passed UCITA, but delayed implementation to consider possible revisions to the statute. Several states began deliberations of UCITA, but decided it was too complex and controversial to enact this year. At the other end of the spectrum, the Iowa legislature passed a law designed to protect Iowa citizens from UCITA's provisions. Thus, because of local attempts to deal with the extensive concerns with UCITA, there is the strong possibility that there will be no uniform practice.

All facets of the research, education, and library enterprise rely upon software and information to create and disseminate knowledge. Indeed, members of these communities are both users and creators of these products and services and are among the largest consumers of information and software. Historically, the research, education, and library communities have looked to copyright law as the policy framework for balancing competing interests of the creators, publishers, and users of copyrighted works. UCITA will dramatically change this framework. Indeed, as with other recent intellectual property and copyright measures, the approach taken in UCITA will be a template for harmonization globally.

LEGAL CONTEXT

As noted in a letter to members of the Maryland General Assembly from leading intellectual property faculty,

> "until recently, federal copyright law and contract law have co-existed in relative harmony. Effectively, only copyright law governed works generally distributed to the public, while works with limited distribution could receive both copyright and contract protection. More recently however, software companies began distributing their products to the general public subject to shrinkwrap licenses."

As the use of shrinkwrap licenses by publishers grew, a subtle but important legal shift occurred. Courts previously skeptical of shrink-wrap or click on licenses became more supportive. UCITA codifies this growing, but not universal, acceptance by legalizing the use of click-on, non-negotiated licenses. The potential result will be the displacement of the uniform system under federal copyright law (that seeks appropriate balances between creators, users, and publishers) with a contract-based system that will operate under the flawed assumption that there is a level-playing field between licensors and licensees. This will not be the case for shrinkwrap licenses, also referred to as contracts of adhesion, where the licensor unilaterally sets the terms.

Since the inception of the digital environment, copyright has applied to digital works and the Internet. Moreover, in 1998, the U.S. Congress enacted the Digital Millennium Copyright Act (DMCA) to update selected sections of the Copyright Act to address the challenges of the digital environment. Proponents of UCITA claim that there is a need to provide a new legal framework to address digital issues, completely ignoring the DMCA and existing copyright case law. UCITA thus represents an end-run around the DMCA and the Copyright Act as interpreted by the federal courts. UCITA is a means to implement on a state level what UCITA proponents have not achieved on the federal level. UCITA creates a very different approach to intellectual property protection with no exemptions and fair use defenses for the research, education, and library communities.

MISSION

A number of problems arise concerning the ability of institutions to carry out their missions under UCITA. In particular, UCITA has adverse impacts with respect to copyright, mixed transactions, and reverse engineering.

☐ **Copyright:** Copyright law has served as the primary legal and policy framework for balancing the interests of users and owners of copyrighted works in both the print and electronic environments. It is within this framework that libraries and educational institutions create and disseminate knowledge and information. UCITA represents a shift away from copyright law to contract law as well as a movement away from societal interests to a focus on economic interests. The rights and statutory exemptions that libraries and educational institutions are entitled to under copyright law, e.g., fair use, reproductions for class room use, preservation, and interlibrary loan—those provisions that balance the interests of owners and users—are likely to be prohibited through contract language enforceable as a result of UCITA. In addition, UCITA will lead to further erosion of the ability of these institutions to negotiate terms of use even in negotiable contracts. Increasingly, use will be more narrowly defined by the licensor in a climate of licensor control. This significant change has profound implications for how members of the library and education communities will be able to achieve their core missions.

☐ **Mixed Transactions:** Libraries and educational institutions purchase, license, and manage information resources in multiple formats—print, electronic, and microfilm. Some of these information resources may be mixed media, a book accompanied by a CD-ROM, for example. In a state where UCITA has been adopted, a publisher could extend license terms on the CD-ROM to the book. That could limit legitimate uses of the copy owned by the library. For example, the license may prohibit the library from lending of the sort clearly permitted under the first sale doctrine under federal copyright law. Or the license could prohibit the library from making a preservation copy of the book permitted under section 108 of the Copyright Act. The transparency that libraries increasingly seek to provide to users in working with a myriad of resources will no longer be possible.

☐ **Reverse Engineering:** University faculty, students, and IT professionals engage in reverse engineering for currently permissible purposes such as research and teaching, debugging, ensuring interoperability between systems, and security testing. Provisions in license agreements that prohibit this otherwise legitimate use of software would be enforceable under UCITA.

OPERATIONS

UCITA will likely increase the cost and complexity of doing business for libraries and educational institutions with regards to electronic self-help, the mass market license, and liability for known defects.

☐ **Electronic Self-Help:** Electronic self-help is the process whereby a licensor may electronically disable, remove, or prevent the usage of computer information or software. This may be done via "back doors" in the software that provide access to hidden commands that may be activated to disable it. Self-help presents numerous problems to libraries and educational institutions. First, these back doors pose significant security issues for the institutions. They enable hackers to access the institutions' network and this could cause serious damage. Secondly, mission critical software could be disabled if the licensor unilaterally decided that the institution was breaching any term of the contract under UCITA. Finally, self-help provides the licensor with the ability to monitor the use of the resource in the institution. As noted below, this raises significant privacy concerns.

☐ **Mass Market Licenses:** Licensing agreements that are "mass market" are not negotiated, such as click-on or shrinkwrap licenses. Under UCITA, when an individual acquires a piece of software and clicks on the "I agree" icon, she is bound by the terms of the license agreement. As we see with click-on licenses already, these terms more often than not prohibit or restrict fair use, reverse engineering, transferability, copies for preservation purposes, and more.

The implications for the library and education communities are enormous. Increasingly, institutions provide faculty and staff with procurement cards, allowing decentralized purchasing of software and information from the distributor. A member of the faculty or staff could, by clicking on the license, waive the privileges and rights available to the individual and/or the institution under copyright law. To protect themselves, libraries and educational institutions may need to recentralize the procurement function. Moreover, contract officers will have to scrutinize each shrinkwrap license to determine what conditions the licensor is trying to impose on the institution. Transaction costs, therefore, are likely to increase substantially.

☐ **Liability for Known Defects:** UCITA would allow software firms to waive liability for known defects in their software that they failed to disclose to their customers. This discourages software firms from exercising quality control, and could leave institutions without legal recourse for the damage caused by these known defects.

☐ **Choice of Law, Choice of Forum:** If a consumer decides to sue a licensor in a state that has adopted UCITA, the licensor, not the user, may choose the venue for the suit to be heard. The licensor may also choose the state law that applies. This is certainly not a level playing field between the consumer and the licensor. It presents significant economic barriers to the consumer and provides the licensor with much more clout concerning which court in which state will hear a case. Moreover, for negotiated contracts, a licensor may choose a state that has enacted UCITA, thus potentially limiting the ability of the institution to negotiate more favorable terms and conditions in the license. Finally, these provisions would be applicable to U.S. and Canadian institutions.

VALUES

Respecting the privacy of an individual and exercising the right to comment upon another's work are core values of the research, education, and library community. If adopted, UCITA is likely to pose serious challenges to upholding and maintaining these values in the library and education communities, indeed, in all sectors.

☐ **Privacy:** Electronic self-help permits a vendor to access the network or computer of the licensee as well as to monitor use of the software or information resource to ensure compliance with the terms and conditions of the license. The licensor performs this monitoring in order to track whether a use is allowed under the terms and conditions of the license. The ability to monitor and track use of information resources is at odds with the long-standing principles in libraries and educational settings concerning privacy and confidentiality.

☐ **First Amendment:** An important tenet of the research, education, and library communities is the ability to critique another's work, be it a software product or journal article. Under the UCITA framework, a term in a license agreement that prohibits public criticism or comment is presumed to be enforceable unless a court rules otherwise. It is unlikely that nonprofit entities, including libraries and educational institutions, will have the resources or resolve to challenge outrageous license terms of this nature.

CONCLUSION

In sum, these concerns directly impact the ability of institutions to carry out their missions, to effectively manage operations, and to preserve and apply community values in the daily work of the institution. For faculty, library users, students, and staff the complexity of managing and accessing information will grow. Libraries and educational institutions are likely to pay more and get less. The costs of doing business will increase because staff in the library or elsewhere on campus will have to review each and every license to see what is and is not permitted. This will pull budgetary and staff time away from acquiring new resources because of the need to develop and manage license mechanisms, permissions, and the like. Thus for publicly-funded institutions, UCITA will result in fewer public funds supporting public library and education programs.

Furthermore, one primary means to achieve greater parity is through enhancing access to information. Thus bridging the "digital divide" or resolving equity issues will be difficult at best in a UCITA environment. Under the terms and conditions of UCTIA licenses, resource sharing will be significantly undermined or even prohibited. Moreover, soaring license fees along with the inherent costs in retaining the necessary expertise for license negotiations is likely to diminish the available pool of resources normally devoted to acquisition of materials available for access and use by the library and education community.

—September 2000

For additional information, please contact
Prue Adler <prue@arl.org> or
Rodney Petersen <rp72@umail.umd.edu>.

LINKS TO UCITA RESOURCES

☐ AFFECT, Americans for Fair Electronic Commerce Transactions, an organization dedicated to lobbying against UCITA, tracks latest news on its debate <http://www.4cite.org/links.html#media>

☐ The Association of Research Libraries' UCITA index <http://www.arl.org/info/frn/copy/ucitapg.html>

☐ The American Library Association's Washington, D.C., office offers basic information on UCITA <http://www.ala.org/washoff/ucita.html>

☐ The most recent version of UCITA, courtesy of Penn Law School <http://www.law.upenn.edu/bll/ulc/ucita/citam99.htm>

☐ Rodney Petersen on Licensing Digital Information and UCITA <http://www.educause.edu/ir/library/pdf/eq/a002/eqm002b.pdf>

☐ Letter from 38 professors of Intellectual Property law at various universities, opposing UCITA <http://www.arl.org/info/letters/profs_ucita.html>

☐ Statement by James Neal, Dean of the Johns Hopkins University Libraries, on UCITA before the Maryland General Assembly <http://www.arl.org/info/frn/copy/nealstmt.html>

☐ A Spring 2000 UCITA update from Rodney Petersen of the University of Maryland <http://www.arl.org/info/frn/copy/petersen,html>

☐ Computer consultant James Huggins on UCITA, NCCUSL, and uniform state laws <http://www.JamesSHuggins.com/h/tek1/ucita.htm>

☐ Joint Statement on UCITA from several library associations to the Federal Trade Commission <http://www.arl.org/info/letters/FTC091100.html>

☐ Five Reasons Consumers Oppose UCITA, from the UCITA Consumer Advocates <http://www.nclc.org/ucita/index.html>

☐ Problems posed by UCITA for business users of software, as defined by the Principal Financial Group <http://www.arl.org/info/frn/copy/keyprobs.html>

☐ The letter signed by 24 state Attorneys General, opposing UCITA <http://www.arl.org/info/frn/copy/agoppltr.html>

☐ Joint Letter from library associations to Gene Lebrun, the President of NCCUSL <http://www.arl.org/info/letters/Lebrun7.12.html>

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databases make it much easier to access information resources, and make possible the manipulation and use of data in powerful ways not possible with analog media. But this does not translate into the ability of any particular electronic medium to serve an archival or preservation function. It may be true that some libraries have reduced their analog media holdings and make growing use of digital information collections. But for research libraries, for whom preservation and access are central to their mission, retention of paper and microfilm continues because these are the only proven preservation media. Indeed, a growing number of research libraries (almost eighty) rely upon offsite storage facilities to accommodate the burgeoning growth of their physical collections.[2]

Electronic media may have some advantages over other media for preservation purposes and may be the only viable means for preserving certain fragile material. (*See* Brief of *Amici Curiae* Ken Burns, *et al.* ("Historians' Brief") at 10.) But what the Historians' Brief fails to note is that the same Library of Congress report they cite goes on to observe that electronic media "may introduce new preservation problems of their own."[3] In fact, digital reformatting is not yet considered a standard preservation strategy. Abby Smith, Council on Library and Information Resources, Why Digitize? At 3-7 (1999) ("Smith"). Though digitization of content is sometimes loosely referred to as "preservation," digitization does not yet afford the permanence and authenticity[4] necessary for it to serve as a true preservation medium that is free "from physical deterioration." (Publishers' Brief at 2.) [...]

C. Petitioners Are Not Altruists Serving The Public-At-Large, But Are Commercial Businesses Requiring Licensed Access To Collections

Further separating these so-called "electronic archives" from traditional archives are the contractual obligations that restrict the use and preservation of "electronic archives." For example, an online version of a work in a collective database, such as NEXIS, may be subject to a variety of payment, time and use limitations. Commercial databases and CD-ROMs are also often subject to electronic access controls that end-users may not circumvent without violating contractual provisions and, most recently, Section 1201 of the Copyright Act.[5] A library can acquire a paper or microform copy of a book or periodical through an outright purchase of the copy. A library can preserve and access this copy indefinitely and convey it to others, with some limitations. *See* 17 U.S.C. §109(a). By contrast, a CD-ROM copy of the same work will often be subject to licensing restrictions imposed by the publisher to prevent the end-user from making various uses of the copy or from reselling it to others. A digital copy of a work can be encoded so as to prevent access to it after a certain time has elapsed and can be readily structured to permit access to it only on a "pay-per-use" basis. Although there are narrow exemptions in the statute for nonprofit library, archive and educational institutions and for public broadcasting entities, one may not circumvent these access restrictions without risk of incurring civil and/or *criminal* penalties for doing so. *See* 17 U.S.C. §1201, §§1203-04.

II. The Copyright Act Does Not Require Deletion of Works from Electronic Databases or Destruction of CD-ROMs, and the Courts Can Require Payment of Fair Compensation in the Form of Past and Continuing Royalties for Use of these Works

Petitioners and their supporting *amici* insist that the Second Circuit's decision necessarily will force commercial electronic database publishers to delete articles from databases, destroy CD-ROM products, and take other drastic actions that will devastate archives and prevent the public from having "meaningful access" to back issues of periodicals. [...] Certainly, a less drastic alternative is a ruling that ensures fair compensation to freelance authors, while permitting commercial electronic database publishers to continue to reproduce and distribute freelance submissions under a manageable licensing system. This solution is not only within the authority of the courts, it is also a sound balancing of the interests of freelance authors in being compensated for the exploitation of their works and the public interest in access to those works.

[...] The difficulty and transaction costs associated with seeking and obtaining permissions from freelance authors or their heirs may be high. Removal of the freelance articles also has the potential to occasion public injury. The number of works in question is unknown, but loss of access to any appreciable amount of content harms the public. There is great social value in preserving public access to these works, particularly in light of the academic and research nature of many potential uses. Even though the "electronic libraries" and "electronic archives" in question in this case are not true libraries or archives, they are useful services that are of significant value and utility to numerous individuals and institutions. To the extent that their utility is diminished or their cost increases, the public interest is harmed. [...] The system of remuneration for these uses should be fair to freelance authors and not administratively burdensome for commercial electronic database publishers if such a system is to satisfy the public's concern with access.[6] The particulars of such a system are surely within the abilities of the courts and interested parties to develop. But as an example of how such relief could be structured, commercial electronic database publishers could be required to pay for works on a group basis, such as is done with the voluntary system of blanket performance licenses of musical compositions administered by ASCAP and BMI. Proceeds could be placed into a trust account and distributed to freelance authors or their representatives according to agreed upon criteria.[7] It may also be appropriate to develop criteria for freelance authors to "opt out" of the system under certain conditions. But regardless of the specific structure of relief, there are ways around the "all or nothing" dilemma envisioned by Petitioners and their supporting *amici*.

III. The Works Will Remain or Become Available Through Other Avenues

If the Court affirms the Second Circuit's ruling with the result that certain works were to be removed from commercial electronic databases, these works would remain available through other avenues, as other commentators have acknowledged. (See Historians' Brief at 12.) Hard copies and microform copies of these works will not cease to exist, and there is no credible suggestion that such copies would need to be pulled from library shelves or microfilm collections and destroyed. [...] Nor should traditional print or microfilm compilations of collective works cease to be reproduced and distributed. Petitioners and their supporting *amici* claim that the Second Circuit's decision effectively renders unlawful practices such as the reproduction of multiple issues of a periodical onto a single roll of microfilm (*e.g.*, a roll of microfilm containing, in chronological order, all the issues of *Time* magazine from January through June of 1999) and the distribution of the microfilm to the public. (*See, e.g.*, Petitioners' Brief at 19, 45; Publishers' Brief at 3.) This prediction surely overstates the effect of the Second Circuit's decision.

* * *

This brief was authored for ARL and ALA by Peter Jaszi, Washington College of Law, American University and Arnold P. Lutzker and Carl Settlemyer of Lutzker & Lutzker, LLP. A compilation of the briefs filed in this case, including a statement by Register of Copyrights Mary Beth Peters that was published in the Congressional Record, *appears on the website for the National Writers Union <http://www.nwu.org/>. The ARL/ALA brief in its entirety also appears on the ARL website <http://www.arl.org/info/frn/copy/copytoc.html>.*

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[1] Over the course of history, "libraries" have evolved and these institutions have preserved works in all media, from ancient means of communication, like clay tablets, papyrus, and parchment, to paper writings, drawings, and maps, to analog photographs, sound recordings, film, video, and now digital media. Recent federal legislation, for example, specifically targets improvement of information access at libraries through technology. Library Services and Technology Act of 1996, 29 U.S.C. §9121.

[2] Even research libraries that are investing heavily in electronic resources are approaching the replacement of their paper resources with caution. See Peter Allison & Carolyn Mills, *Library Investing Heavily in Electronic Journals*, UCONN Libraries, Feb./Mar. 2001, at 6.

[3] *Commission on Physical Sciences, Mathematics, and Applications, National Research Council, LC21: A Digital Strategy for the Library of Congress* at 6-2 (2000) ("Library of Congress Report").

[4] It may be difficult to ascertain the authenticity and integrity of an image, database, or text when it is in digital form. In essence, one can change the bit stream of a file and leave no record that it has been altered. By contrast with traditional media, where evidence of a forgery is often carried in the physical medium itself (e.g., the chemical composition of the ink and the date of the paper, physical signs of modification or erasure), it is more difficult to detect a forgery in the digital environment. Smith, *supra*, at 6. This level of authenticity may not be routinely necessary to most researchers, but it is important to keep in mind that this distinguishes digital media from true preservation media for archival purposes.

[5] 17 U.S.C. §1201, *et seq.*, was adopted as part of the Digital Millennium Copyright Act, Pub. L. No. 105-34 (1998) ("DMCA"). The DMCA adds legal force to previously privately enforced contractual clauses. Exemptions are few. When the U.S. Copyright Office initiated a rulemaking proceeding to evaluate the nature and scope of possible exemptions from prohibitions on circumvention of access controls, commercial interests aggressively challenged any proposed exemptions. *See* 65 Fed. Reg. 64,555 (2000). In its Final Rule, the Copyright Office describes concerns that Congress had in the development of marketplace realities that could restrict access to copyrighted materials in the digital environment. "Possible measures that might lead to such an outcome included the elimination of print or other hard-copy versions, permanent encryption of all electronic copies and adoption of business models that restrict distribution and availability of works." *Id.* at 64, 557-58.

[6] The authors would certainly appear to have incentives to assist in devising a fair system of remuneration. As noted in the Publishers' Brief, "the vast majority of freelancers might prefer continued inclusion in electronic libraries or on CD-ROM" in order to obtain the "intangible benefits of continued electronic publication and the 'free publicity' and boost to personal reputation it offers." (Publishers' Brief at 9.) (*See also* SIAA Brief at 25.) This may not be sufficient inducement for some writers, however. Many writers may prefer instead to license their works and make them broadly available to the public in exchange for the same type of financial rewards that have induced the nation's commercial electronic database publishers to make these works available heretofore.

[7] Copyright law has been amenable to various legislative solutions that do not require users of works to engage in excessively burdensome clearance procedures. For example, Sections 111 and 119 were fashioned as solutions permitting retransmission of broadcast signals to cable and satellite subscribers when the cable and satellite systems pay fees to compensate program owners. *See* 17 U.S.C. §§111 and 119. Section 114 contains a compulsory licensing mechanism for the use of sound recordings in the digital environment, provided that the sound recording copyright owners are compensated for these uses. *See* 17 U.S.C. §114. The ASCAP consent decree cases in the U.S. District Court for the Southern District of New York demonstrate that the courts are equipped to supervise the reasonableness of royalty rates charged to end-users of copyrighted material. *See generally, Broadcast Music, Inc. v. Columbia Broadcasting System, Inc.*, 441 U.S. 1, 10-12 (1979) (discussing history of ASCAP consent decrees and rate-setting provisions thereof); *Buffalo Broadcasting Co., Inc. v. American Society of Composers, Authors and Publishers*, 744 F.2d 917, 922-23 (2d Cir. 1984) (same).

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STATISTICS AND MEASUREMENT

Martha Kyrillidou, Senior Program Officer

ARL SALARY SURVEY 2000–2001 RELEASED

by Karen A. Wetzel, ARL

The recently released *ARL Annual Salary Survey* reports ARL librarians' 2000–2001 salaries are barely keeping up with inflation. The median salary for combined U.S. and Canadian salaries increased only 3.3% over the last year, as compared to the 3.7% and 3.0% rise in U.S. and Canadian Consumer Price Indexes, respectively. The 2000-2001 survey reports on 8,882 professional staff members for the 112 ARL university libraries (including law and medical libraries), and 3,731 staff members for the 10 nonuniversity ARL libraries. Overall, the median university library salary was reported at $49,068, and $62,521 for nonuniversity library staff. Only nonuniversity salaries increased at a rate higher than the rate of inflation (4.2%).

However, the survey also indicates that beginning salaries are increasing at a much faster rate than the median salary—showing an increase of 5.4% and 2.9% for university and nonuniversity salaries, respectively. The median beginning salary in ARL university libraries is $32,879 (compared to last year's $31,100); in ARL nonuniversity libraries it is $31,774 (compared to last year's $30,849).

The median salary for librarians in Canada remains behind that of their U.S. counterparts, showing a continued deflated purchasing power for the Canadian dollar. Canadian university libraries for FY 2000–2001 record a median salary of $43,394,[1] or 12.8% less than the U.S. median of $49,753.

In the U.S., the highest salaries are found in the Pacific area, followed by New England and the Middle Atlantic. Further, salaries in private U.S. ARL university libraries continue to exceed those paid in publicly supported U.S. university libraries, an average of 4.5% more.

Those libraries with the most library staff continue to pay the highest average salaries. For the second year in a row, the second largest cohort of libraries (staff numbering between 75 and 110) has the highest average salary, $55,420, compared to $54,579 for the largest cohort (staff over 110)—a difference of $4,659 (8.4%) from the lowest-paying cohort (staff numbering between 23-49). Of interest is that the cutoff staffing levels used to determine the largest cohort of libraries has declined since 1995-96, indicating a general trend towards downsizing in the largest cohort.

Women's salaries at all ARL institutions averaged $51,811 in 2000-2001, a 3.6% increase since last year. The average salary for men was $55,005, a 3.4% increase. Average salaries for men in most cases still surpass those of women in the same job category, something that cannot be fully accounted for in experience differentials. This pattern is also repeated for minority librarians: the average salary for minority men is higher than that for minority women in nine of the ten experience cohorts.

The average salary for female university library directors (51 women out of 111 directorships reported) has, however, again surpassed that of male directors', by 2.4% for FY 2000–2001. The overall gender balance in the 112 ARL university libraries (including law and medical) is 35.6% male and 64.4% female, figures that have remained relatively consistent since 1980–81.

Minority librarians comprise 11.7% of the professional staff in U.S. ARL university libraries, with the number of minorities in managerial or administrative positions being even lower (5.1% are directors; 7.5% are associate or assistant directors; and 10.6% are branch librarians). Women comprise 69.6% of minority staff. Minorities continue to be underrepresented in the East South Central, West North Central, New England, Mountain, and East North Central regions.

The *ARL Annual Salary Survey 2000–2001* is available for $44 to member libraries and $100 to nonmembers (plus shipping and handling), and is available on standing order. To order online, visit <http://www.arl.org/pubscat/order/index.html>. For more information, contact ARL Publications at <pubs@arl.org>.

ARL ACADEMIC LIBRARIANS, FY 2000-2001*

	Women	Men	Combined
Average Salary	$51,811	$55,005	$52,988
Average Years of Experience	17.0	16.8	16.9
Total Number of Filled Positions	4,567	2,664	7,231
Minority Librarians' Average Salary (U.S. only)	$49,065	$53,456	$50,386
Minority Librarians' Average Years of Experience (U.S. only)	15.5	14.8	15.3
Total Number of Minority Librarians (U.S. only)	539	232	771
Total Number of Directors (filled positions)	51	60	111

* Excludes law and medical libraries.

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[1] Can $63,873, converted at the rate of 1.4719 Canadian to U.S. dollars, the monthly noon exchange rate published in the *Bank of Canada Review* for the period July 1999–June 2000.

OFFICE OF LEADERSHIP & MANAGEMENT SERVICES

Lee Anne George, OLMS Information Services

RECENT SPEC PUBLICATIONS

The OLMS Systems and Procedures Exchange Center (SPEC) publishes SPEC Kits to identify expertise and encourage exchanges among academic and research liberary staff. Kits contain practical management information on how libraries deal with today's challenges. For a comprehensive list of SPEC Kits, see <http://www.arl.org/spec/complete.html>.

Changing Roles of Library Professionals

SPEC Kit 256, May 2000

by Janice Simmons-Welburn, University of Iowa

Over the past ten years, many changes have affected the roles of librarians and other professionals in research libraries. The changes have been caused, in part, by technological advances, reorganizations, more focus on libraries as learning organizations, the use of teams and team-based approaches to tasks, and a recognition of diversity's importance to organizational development. Librarians have had to align priorities with redefined institutional goals.

The survey for this SPEC Kit, conducted by the ARL Leadership Committee, was an effort to examine these professional changes through an analysis of position descriptions issued by ARL member institutions.

The M.L.S. Hiring Requirement

SPEC Kit 257, June 2000

by Julia C. Blixrud, ARL

Traditionally, academic research libraries have been expected to require the M.L.S. for any professional position. However, as libraries create new types of positions, especially for those with significant technology components, library directors and personnel officers have begun to question whether the M.L.S. degree is as necessary as other degrees or experiences.

This Kit includes the Quick SPEC survey results and selected documents addressing institutional policies and procedures for the hiring and appointment process, as well as criteria for the promotion and reappointment processes in a variety of institutional settings.

Managing Corporate Annual Reports

SPEC Kit 258, July 2000

by Lisa O'Connor, Kent State University

For nearly as long as companies have published annual reports, libraries have collected them. Acquiring, processing, and storing annual reports in print is a time-consuming effort and requires substantial storage space for even modest collections. With competition from a growing array of sources that provide at least the text and data, if not the images of annual reports themselves, the question persists: Has technology alleviated the need to collect annual reports in their print format?

The purpose of the survey for this SPEC Kit was to assess the current print annual report collection practices of ARL libraries, describe the effects of electronic information on the perceived importance of these collections, and recommend best practices for preserving these significant historical documents.

Fee-Based Services

SPEC Kit 259, August 2000

by Claudine Jenda, Auburn University

For several decades, libraries have explored alternative ways of providing responsive library services to their external users. Fee-based services have been established by a number of libraries to serve as the point of contact for the wider community. The purpose of this survey was to determine how many ARL libraries offer fee-based services to their external users, the procedures and organizational structures of such services, and the factors that contribute to a successful fee-based service program.

The Interview Process

SPEC Kit 260, September 2000

by Heidi Frank, Shawn Nicholson, Laura Dickson, and Terri Tickle Miller, Michigan State University Libraries

Interviewing job candidates in a large research or academic library can be difficult for all parties concerned, as well as time consuming. For the librarian who has never experienced the process, the time and preparation involved can be quite overwhelming. For libraries, the interviewing of candidates for a position takes a substantial amount of time and personnel resources. It is important to find ways to interview candidates in an efficient manner in order to reduce the burden on increasingly limited library resources.

The purpose of this survey was to ascertain the nature and structure of the interview process at large research and academic libraries in the United States and Canada, so that, in part, candidates will have a guide to help them prepare for such an interview. Libraries, in turn, will benefit by seeing candidates who are better prepared for the process and will gain insight into the best practices at peer institutions.

Post-Tenure Review

SPEC Kit 261, October 2000

by Sara Anne Hook, N. Doug Lees, and Gerald Powers, Indiana University Purdue University Indianapolis

Post-tenure review was one answer to the public's demand for standards and accountability in faculty work throughout the 1990s. At the end of 2000, a substantial number of higher education institutions have either implemented these policies or have post-tenure review policies under development. This SPEC survey attempted to discover how such policies currently affect librarians.

To order copies of any of these titles, contact the ARL Publications department at <pubs@arl.org>, or order online at <http://www.arl.org/pubscat/order/index.html>. SPEC Kits: ISSN 0160-3582, $45 ($30 ARL members), plus shipping.

ARL ACTIVITIES

G. Jaia Barrett, Deputy Executive Director

LEADERSHIP & CAREER DEVELOPMENT PROGRAM: CALL FOR NOMINATIONS, APPLICATIONS

The third ARL Leadership and Career Development (LCD) Program will launch this spring with applications due on April 6, 2001. ARL's LCD Program is designed to increase the number of librarians from underrepresented racial and ethnic groups in positions of influence and leadership in research libraries by helping them develop the skills needed to be more competitive in the promotion process. The yearlong LCD Program consists of several components: an organizing meeting, two five-day Institutes, a mentoring relationship with a director of a research library, development of a research project, completion of three web-based courses offered through the ARL/OLMS Online Lyceum, and a closing ceremony.

The application criteria for the program consists of the following:

- Over five years of professional library experience.
- Member of an underrepresented racial or ethnic group.
- Demonstrated and potential leadership ability.
- Interest in pursuing leadership opportunities and positions in academic and research libraries.
- Letter from home institution supporting participation in the Program.
- One-page research project description.

Successful candidates will be notified by the end of May and the program will be conducted between June 2001 and June 2002. Nominations and applications are encouraged. For more information see the ARL Diversity Program website <http://www.arl.org/diversity/> or contact DeEtta Jones <deetta@arl.org>.

TRANSITIONS

UC-Berkeley: Thomas C. Leonard was named University Librarian. He served as Associate Dean of the Berkeley School of Journalism until he was named Interim University Librarian last year.

Cincinnati: David Kohl will resign as Dean and University Librarian effective June 2001.

Kansas: Keith Russell stepped down as the Dean of Libraries, effective January 10, 2001, for health issues. Julia Rholes is serving as Interim Dean of the University Libraries, focusing on the University Libraries' on-campus relationships until a successor is named. She was previously the Assistant Dean for Information Services. Richard Fyffe is serving as Interim Associate Dean and represents KU to the ARL community. He joined the KU staff last August as Assistant Dean for Scholarly Communication.

Minnesota: Thomas Shaughnessy will retire as University Librarian effective September 10, 2001.

HONORS

The University of Arizona Library will receive the Excellence in University Libraries Award by ACRL.

Betty Bengtson, retired Director of the University of Washington Libraries, was one of 10 people President Clinton announced as recess appointments for the National Council on the Humanities, an advisory group for the National Endowment for the Humanities. The Council also reviews applications for the awarding of grants.

Meredith A. Butler, Director of University Libraries and Dean of Library Faculty at the University at Albany, was appointed the System's first Distinguished Librarian by the State University of New York Board of Trustees. The Trustees cited her contributions on organizational change, multiculturalism, and the economics of electronic information that have benefited the University at Albany and served as a model for libraries nationwide. See the UA System website <http://olis.sysadm.suny.edu/> for a brief video clip of her comments to the Board.

Larry Hardesty, College Librarian at Austin College, was named Academic/Research Librarian of the Year Award by ACRL.

William Gray Potter, University Librarian at the University of Georgia, was named to a three-year term as editor of *College and Research Libraries*.

The University of Virginia Library's Electronic Text Center Japanese Text Initiative was named the winner of the second annual Digital Archives Award by the Digital Frontier of Kyoto. The prestigious award, presented to a digital project that exemplifies cutting-edge technology and rich content in preserving world culture, went to the Library of Congress American Memory project last year.

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ARL CALENDAR 2001

March 29–30	Licensing Workshop *Atlanta, GA*
April 9–10	CNI Task Force Spring Meeting *Washington, DC*
April 25–27	Assistant/Associate University Librarian/Director Institute *Phoenix, AZ*
April 30–May 18	Coaching for Performance *Online Lyceum Course*
May 3–4	New Ways of Listening to Library Users: Tools for Measuring Service Quality *Washington, DC*
May 7–18	Goal Setting *Online Lyceum Course*
May 14–16	Facilitation Skills Institute *Kansas City, MO*
May 22–25	**ARL Board and Membership Meeting** *Toronto, Ontario*
June 6–8	Managing Group Process: Advanced Facilitation Lab *Chicago, IL*
June 27–29	Building on Strength: Developing an ARL Agenda for Special Collections *Brown University* *Providence, RI*
July 23–24	**ARL Board Meeting** *Washington, DC*
August 12–16	Fourth Northumbria International Conference on Performance Measurement in Libraries & Information Services *Pittsburgh, PA*
August 18–24	International Federation of Library Associations Annual Conference *Boston, MA*
September 22–23	New Ways of Listening to Library Users: Tools for Measuring Service Quality *Seattle, WA*
October 10–12	Library Management Skills Institute I: The Manager *San Antonio, TX*
October 16–19	**ARL Board and Membership Meeting** *Washington, DC*
November 7–9	Project Management Institute: Getting Things Done or Getting the Outcomes You Want *Raleigh-Durham, NC*
November 8–9	Shaping ILL/DD Services for the 21st Century *University of Michigan/ARL* *Ann Arbor, MI*
November 12–13	Creating a Culture of Assessment Workshop *Washington, DC*

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A BIMONTHLY REPORT ON RESEARCH LIBRARY ISSUES AND ACTIONS FROM ARL, CNI, AND SPARC

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LIVING THE PRINCIPLES – A RETURN TO TEMPE

by Adrian Alexander, Executive Director, Big 12 Plus Libraries Consortium

On February 9 and 10, 2001, 23 provosts and 26 library deans from members of the Big 12 Plus Libraries Consortium[1] met in Tempe, Arizona to discuss the "Principles for Emerging Systems of Scholarly Publishing." These principles, now known as the "Tempe Principles," resulted from a previous meeting held in Tempe in March 2000, sponsored by the Association of American Universities (AAU), ARL, and the University of Kansas.[2] That meeting brought together 40 stakeholders in the scholarly publishing process to build consensus on a set of principles that could guide the transformation of the scholarly publishing system. Subsequent to that meeting, the AAU and the National Association of State Universities and Land-Grant Colleges commended the principles to their presidents and chancellors for discussion on their campuses. Heeding this call for action, the Big 12 Plus created an opportunity to engage their provosts, in the words of conference organizer Sarah Michalak (University of Utah), "in a discussion of what the principles really mean at the institutional level. We want their endorsement of the principles, but more importantly, we need their involvement in developing action plans for implementing the principles." This February 2001 meeting of the Big 12 Plus provosts and library directors was hosted by Arizona State University Provost Milton Glick and Dean of Libraries Sherrie Schmidt.

The Big 12 Plus (BTP) consists of 29 research libraries located in the central and western United States. Twenty-eight of its members are academic libraries, of which 24 also belong to the Association of Research Libraries. Scholarly communication issues have been a part of the consortium's strategic plan for over three years, with its first direct involvement in the "debate" dating back to April 1998, when the Big 12 Plus hosted a joint meeting of its library deans and members of the U.S. National Commission on Library and Information Sciences at the Linda Hall Library in Kansas City, Missouri. Speakers at that meeting included ARL Executive Director Duane Webster and University of Kansas Provost David Shulenburger, who emphasized the need for a re-examination of the academy's role in scholarly communication, including universities and scholarly societies. Shortly after this meeting, the provosts of the Big 12 Athletic Conference endorsed a statement drafted by Shulenburger and outlining this position, titled "Scholarly Communication and the Need for Collective Action."[3]

The discussions that provided the focal point for the February 2001 Big 12 Plus meeting were facilitated by Stanley Chodorow, former provost at the University of Pennsylvania and now Professor Emeritus at the University of California at San Diego. Chodorow was also a member of the original group that met to develop the Tempe Principles in March 2000. In addition to the provosts and library deans who gathered, the BTP also welcomed two special guests: George O. Strawn, Executive Officer, Directorate for Computer and Information Science and Engineering (CISE), National Science Foundation; and Heather Joseph, President, BioOne, Inc. The discussion was organized around three major themes, each containing several Tempe Principles to be addressed: 1) the promise and requirements of scholarly e-publication, 2) copyright issues of control and fair use, and 3) the economy of scholarly communication. The following is a summary of this discussion and the conclusions that were reached.

Session I - The Promise and Requirements of Scholarly e-Publication

- **Tempe Principle 1:** *The cost to the academy of published research should be contained so that access to relevant research publications for faculty and students can be maintained and even expanded.*
- **Tempe Principle 2:** *Electronic capabilities should be used, among other things, to: provide wide access to scholarship, encourage interdisciplinary research, and enhance interoperability and searchability.*

How can the universities and their libraries use the technological infrastructure that institutions have installed to achieve these goals and to ensure that the university's information assets are securely preserved and readily accessible to faculty and students?

This session began with a discussion of the "scholars portal" concept and its application to achieving a readily accessible, cost-effective system of scholarly communication. While there was general support for the idea, several questions were raised. For example, where should the editorial function and other control mechanisms reside? How would peer review be managed and paid for? One participant suggested incorporating a "fee for service" for manuscript review. Everyone did seem to agree that portals would need to be discipline-based. This led to a lengthy discussion of the importance of the role of scholarly societies in developing scholars portals. It was suggested that a good starting place for developing a portal might be with digitized public domain information already indexed in our libraries. But, the group asked, how do we collaborate on a project such as this? Could BTP libraries serve as a test-bed for such an approach? Before the BTP begins creating portals, cautioned a participant, there may be a need for the community to focus first on creating more "alternative" publishing outlets, such as was done with BioOne.[4]

The conversation then turned to ideas for how to move these concepts forward. One suggestion was to identify what should be included in a scholars portal to address the challenges and expanding possibilities of scholarly publishing. Then the BTP libraries could sponsor meetings of their faculty, with particular focus on those disciplines that would most likely benefit from and that are most ready to move to a new model such as this. After identifying such interested groups, the provosts' role would be to support—both financially and with policy—campus participation. Additionally, other academic consortia, such as the CIC, as well as scholarly societies, could be invited to participate. The University of Arizona's creation on its campus of the low-cost alternative journal *Journal of Insect Science*, which competes with an existing, higher-priced journal, was given as an example of a successful approach to tying the scholars portal *concept* to a source of academy-sponsored and vetted *content* for a portal. Another option proposed for local action was to identify on each of the BTP campuses journal editors who are key to effecting any changes in the system of scholarly communication.[5]

Session II – Copyright Issues of Control and Fair Use

- **Tempe Principle 5:** *The academic community embraces the concepts of copyright and fair use and seeks a balance in the interest of owners and users in the digital environment. Universities, colleges, and especially their faculties should manage copyright and its limitations and exceptions in a manner that assures the faculty access to and use of their own published works in their research and teaching.*
- **Tempe Principle 6:** *In negotiating publishing agreements, faculty should assign the rights to their work in a manner that promotes the ready use of their work and choose journals that support the goal of making scholarly publications available at reasonable cost.*

How does fair use of electronic publications differ from that of print publications? What position should universities take in defining fair use in the electronic media? What role should granting agencies play in helping to realize the goals of Principle 6? What should universities do to encourage the agencies—principally the NIH and NSF—to assist in this effort?

The Tempe Principles clearly acknowledge the central role played by copyright in the academic community's mission of advancing knowledge. The principles note that members of the community are both creators and consumers of scholarly publications, and by judiciously assigning the rights to their work, faculty members can help assure that scholarship remains affordably available to the community. This second discussion session began with a suggestion that faculty, when they publish, ought to stipulate that their work go into the public domain six months after publication, as called for in the "Public Library of Science" (PLOS) movement.[6] The PLOS is a grassroots effort led by a small group of distinguished life scientists to create publicly available electronic archives of the life sciences literature. The leaders of the PLOS are encouraging scientists to talk with their societies and to sign an open letter pledging to submit to, review or edit for, or subscribe to only those journals that will make their content freely available in a public archive six months after publication. Participants noted that many of the original signers of the letter are journal editors themselves. Can BTP provosts and library deans do anything practical on their respective campuses to support this initiative? One response was that all of those present could endorse the

PLOS concept on their campuses and encourage faculty to sign the open letter. It was also suggested that the BTP could recommend to the National Science Board that it adopt a policy with respect to placing publicly funded scholarly publications in the public domain. The group concluded this session by endorsing the PLOS concept and agreeing to work to encourage faculty to sign the open letter. In addition, they agreed to inform faculty of the importance of amending publishers' copyright transfer agreements in order to reserve the rights to use their own works in teaching and research. The Triangle Research Library Network's "Model University Policy Regarding Faculty Publications in Scientific and Technical Scholarly Journals" was pointed out as a good example of a useful model.

Session III - The Economy of Scholarly Communication

- **Tempe Principle 1:** *The cost to the academy of published research should be contained so that access to relevant research publications for faculty and students can be maintained and even expanded. Members of the university community should collaborate to develop strategies that further this end. Faculty participation is essential to the success of this process.*
- **Tempe Principle 8:** *To assure quality and reduce proliferation of publications, the evaluation of faculty should place a greater emphasis on quality of publications and a reduced emphasis on quantity.*

How do we restore the proportionality of the cost of information within the economy of the academy? What opportunities do the electronic media give us to reduce the cost of publication and distribution of information? How do we preserve fundamental academic values while reducing the cost of publication?

The third session of the day began with a discussion of Tempe Principle 8, dealing with the issue of "quantity vs. quality" in scholarly publication. Chodorow cited several universities as examples of institutions where this issue has been explored, but noted that there isn't necessarily a single formula that would apply evenly across disciplines or that could be applied uniformly by all departments. Nevertheless, the adoption of a formula could change a campus's culture over time. Some questioned, however, whether Principle 8 had its roots in the paper journal age, where concern over quantity is a byproduct of annual faculty evaluation systems that force us to emphasize placing "marks on the wall." Others were concerned that we might be fooling ourselves to think of Principle 8 as a means of reducing the cost of scholarly communication. In fact, selecting fewer articles for tenure and promotion might not prove to be an incentive to publish less at all, but might prompt faculty to publish even more.

Summation and Next Steps

The meeting ended with the hope that the impact of what was learned at this gathering will extend beyond our own campuses. The Big 12 Plus could become a catalyst for promoting change across the academy. The following points of agreement were reached:

- Support and fund the development of electronic journals that dramatically reduce costs to libraries, or which fill in gaps in the literature, such as *BioOne* <http://www.bioone.org/>, which was co-founded by the BTP, and the University of Arizona's new *Journal of Insect Science* <http://www.insectscience.org/>.
- Encourage faculty at BTP institutions to sign the "open letter" on the Public Library of Science website <http://www.publiclibraryofscience.org/>, and work with journal editors on our campuses to commit their respective publications to the PLS concept. Additionally, we will pursue the adoption of a resolution from the BTP provosts and their library deans to the National Science Board, requesting a new National Science Foundation policy that supports and implements the Public Library of Science concept for *all* NSF-funded research, and that creates an archive for that research similar to the National Institutes of Health's PubMed Central <http://www.pubmedcentral.nih.gov/>.
- Endorse the original Tempe Principles on each of our campuses.
- Re-evaluate our respective promotion and tenure policies as they relate to the valuable work performed by faculty as journal editors, including work on electronic publications.
- Create a strategy to develop an array of scholars portal initiatives within the BTP, utilizing existing technical standards and including discipline-specific, customized scholarly content.
- Promote best practice (model language) in institutional intellectual property rights policy in order to achieve the goal of unconstrained access to scholarly materials for educational purposes.

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[1] See <http://www.big12plus.org/>.

[2] See <http://www.arl.org/scomm/tempe.html>.

[3] See <http://www.big12plus.org/pressreleases/scholar.htm>.

[4] BioOne is an online aggregation of journals in whole organism biology created through a partnership of the Big 12 Plus, SPARC, the University of Kansas, AIBS, and Allen Press. See <http://www.bioone.org/>.

[5] It was noted that a database of journal editor information is included as a part of the Create Change campaign and would be useful in this initiative. See <http://www.arl.org/create/resources/journal.html>.

[6] See <http://www.publiclibraryofscience.org/>.

[7] See <http://www.lib.ncsu.edu/scc/trln.html>.

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OFFICE OF SCHOLARLY COMMUNICATION

Mary M. Case, Director

THE PUBLIC LIBRARY OF SCIENCE

A group of leading life scientists is calling on publishers, editors, and scientists "to join together to create public, electronic archives of the scientific literature, containing complete copies of all published scientific papers" (*Science* 23 [March 2001]: 2318). This grassroots effort, known as the Public Library of Science, has attracted the support so far from over 15,500 scientists from 137 countries who have signed a letter indicating that, as of September 2001, they will only publish in, review and edit for, and subscribe to journals that make their content freely available on a publicly accessible archive six months after publication. The site is available at <http://www.publiclibraryofscience.org/>.

To find out more information on the Public Library of Science, contact Patrick O. Brown <pbrown@cmgm.stanford.edu> of Stanford University School of Medicine and the Howard Hughes Medical Institute or Michael Eisen <mbeisen@lbl.gov> of the Lawrence Berkeley National Lab and University of California at Berkeley. The full text of the Open Letter follows.

Open Letter

We support the establishment of an online public library that would provide the full contents of the published record of research and scholarly discourse in medicine and the life sciences in a freely accessible, fully searchable, interlinked form. Establishment of this public library would vastly increase the accessibility and utility of the scientific literature, enhance scientific productivity, and catalyze integration of the disparate communities of knowledge and ideas in biomedical sciences.

We recognize that the publishers of our scientific journals have a legitimate right to a fair financial return for their role in scientific communication. We believe, however, that the permanent, archival record of scientific research and ideas should neither be owned nor controlled by publishers, but should belong to the public, and should be freely available through an international online public library.

To encourage the publishers of our journals to support this endeavor, we pledge that, beginning in September, 2001, we will publish in, edit or review for, and personally subscribe to, only those scholarly and scientific journals that have agreed to grant unrestricted free distribution rights to any and all original research reports that they have published, through PubMed Central and similar online public resources, within 6 months of their initial publication date.

ECONOMICS FACULTY CREATE CHANGE

by Marcus Kieltyka, Reference Librarian, Auburn University Library

This article will examine three recent innovations of scholarly communication within the discipline of economics through the framework of Albert Hirschman's influential work, *Exit, Voice; and Loyalty; Responses to Declines in Firms, Organizations and States* (1970). Hirschman's main thesis is that, when confronted with either real or imagined declining service, institutions and individuals react in two ways: either they abandon the current service, or they continue to use it but with complaint. As long as there is a mix of these two groups, argues Hirschman, the provider will have time to adjust to these demands. A reverse of this is that if all customers immediately exercise the *exit* option, the provider will not have any resources to realign and will be forced into bankruptcy. On the other hand, if everyone were to remain *loyal*, the firm would have no incentive to invest in change. Hirschman's framework, applied to the services provided by publishers of scholarly journals, highlights the key role of faculty in effecting positive change in scholarly communication.

In higher education, scholarly publication is a vital method both for professional communication and for tenure qualification. Since the 1960s, the continued growth of knowledge and the rising number of researchers has led to an increased demand for scholarly publications, far outstripping the limited number of society- or university-based publications that existed in the mid-20th century. University of California, Santa Barbara Professor of Economics Theodore Bergstrom has documented that the number of English-language economics journals increased from nearly 30 in 1960 to about 120 in 1980 and almost 300 in 2000. Further, the ownership of English-language economics journals shifted dramatically to the commercial sector during this time period. Ownership moved from near-total university ownership in 1960 to a near-equal division by 1980 and a two-thirds commercial ownership in 2000.[1]

The phenomenon was not unique to economics—it swept across many academic disciplines. In general, the academic community—including, until the 1980s, libraries—lived through trends such as these without significant comment or protest. Or, to use Hirschman's terminology, without exercising *voice*. In retrospect, the consequences of this commercial dominance of scholarly journal publishing were profound. Prices for subscriptions escalated far above any estimates of inflation or growth in journal size.

To illustrate the results of commercialization on the price of economics journals, Bergstrom notes that, since 1995, the price of economics journals has increased at the rate of 13% per year. Between 1985 and 2001, the average

Table 1. Nonprofit Journals: Prices and Pages, 1985 and 2001

Prices for 1985 are inflated to year 2000 dollars

	Year 1985			Year 2001		
JOURNAL	PRICE	PAGES	$ PER PAGE	PRICE	PAGES	$ PER PAGE
AEA Journals	$160	4583	$0.03	$140	4427	$0.03
Econometrica	$139	1525	$0.09	$241	1558	$0.14
J Political Ec	$80	1277	$0.06	$175	1337	$0.13
Quarterly J Ec	$77	1350	$0.06	$198	1467	$0.13
J Finance	$64	1528	$0.04	$207	2950	$0.07
J Consumer Res	$90	495	$0.18	$99	522	$0.19
Ec Journal	$160	1178	$0.14	$321	1983	$0.16
Rev Ec Studies	$104	725	$0.14	$180	818	$0.24
Rec Ev Statistics	$141	715	$0.20	$200	733	$0.27
Amer J Ag Ec	$24	460	$0.05	$134	1053	$0.10
Average	**$104**	**1384**	**$0.10**	**$187**	**1637**	**$0.15**

Table 2. Commercial Journals: Prices and Pages, 1985 and 2001

Prices for 1985 are inflated to year 2000 dollars

	Year 1985			Year 2001		
JOURNAL	PRICE	PAGES	$ PER PAGE	PRICE	PAGES	$ PER PAGE
J Financial Ec	$175	609	$0.29	$1429	1974	$0.72
J Ec Theory	$410	1198	$0.34	$1800	2000	$0.90
J Econometrics	$463	1193	$0.39	$2020	2323	$0.87
J Monetary Econ	$146	406	$0.36	$1078	1371	$0.79
J Public Ec	$389	1187	$0.33	$1546	1817	$0.85
World Development	$413	1313	$0.31	$1548	2198	$0.70
European Ec Rev	$333	1206	$0.28	$1189	1992	$0.60
J Env Ec & Mgmt	$78	395	$0.20	$650	697	$0.93
J Health Ec	$106	389	$0.27	$865	1137	$0.76
Ec Letters	$341	1237	$0.28	$1592	1492	$1.07
Average	**$286**	**913**	**$0.30**	**$1372**	**1700**	**$0.82**

Source: Theodore C. Bergstrom, "Free Labor for Costly Journals?" (20 March 2001) <http://www.econ.ucsb.edu/~tedb/Journals/jeppdf.pdf>.

real subscription prices to libraries for the top ten most-cited nonprofit journals increased by about 80%, while the top ten commercial journals increased 379%. Taking into consideration the average price per page, Bergstrom found increases of 50% for the same nonprofit journals and 173% for the commercial journals.[2]

Other research also confirms a significant discrepancy between journals published by commercial publishers versus those published by nonprofit publishers or societies. In a cross-disciplinary examination of journal titles' cost effectiveness, George Soete, ARL, and Athena Salaba, University of Wisconsin, examined the cost of a journal subscription per 1,000 characters, compared it to a published journal impact assessment, and derived a cost-per-impact ratio.[3] A journal's impact was defined as the number of times articles in the journal were cited, a measure that is recorded in ISI's (Institute for Scientific Information) *Journal Citation Report*. Using these measures, Soete and Salaba compared economics, physics, and neuroscience journals. What they found is that commercially published journals in all three fields are significantly less cost-effective than journals published by not-for-profit enterprises. The measure that they found most persuasive as an indicator of cost effectiveness was the cost/impact ratio. Lower cost/impact ratios mean greater cost effectiveness. In economics, the average cost/impact ratio for commercial journals (42.62) is about four times that for nonprofit journals (11.55). For comparison, in physics, the average cost/impact ratio for commercial journals (14.61) is 1.77 times higher than the average ratio for nonprofit journals (8.23). In neuroscience, the average for commercial journals (8.69) is 13.63 times that for nonprofit journals (0.64).

The Library Response: A Mix of *Voice, Exit,* and *Loyalty*

In an effort to respond to double-digit subscription rate increases for scholarly journals, libraries initially responded in ways that on the surface may look like mixed signals, illustrating all three of Hirschman's framework of *voice, exit,* and *loyalty*. The strategy of *voice* is illustrated in countless articles, conference programs, letters, and both formal and informal library-vendor conversations about the spiraling increases in the costs of scholarly publishing, especially for scientific and technical journals. The intensity of *voice* grew especially during the mid- and late-1980s. In 1989, ARL published the results of the ARL Serials Prices Project, which included the results of a study undertaken for ARL by Economics Consulting Services. The report studied four large publishers (Elsevier, Pergamon, Plenum, and Springer-Verlag) and documented that, from 1973-87, publishers' profits increased between 40% and 137%. The results indicated that the cost increases of journal subscriptions did not justify the price increases paid by research libraries. With ammunition from this study and others, the librarians' *voice* took on a new credibility.[4]

Another library response during the 1980s was the inevitable cancellation of journals. Since 1986, research libraries have canceled an average 6% of their journal subscriptions. During the same timeframe, the average research library's expenditures for serials have increased 170%. In 1999, a research library spent, on average, over $4 million for serials (journals, etc.). How and *why* libraries paid more every year to receive fewer journals is a complex story more fully documented elsewhere.[5] In brief, however, during the last 20 years libraries pursued strategies to sustain journal collections as best they could, not because of their *loyalty* to the journal publishers, but from *loyalty* to faculty who are the contributing authors, reviewers, editors, and users of the journals in question. Libraries shifted monographic acquisition funds to pay for journals (and as a result reduced monographic acquisitions by a shocking 26%). In some cases, libraries sought and were able to secure additional budget allotments from parent institutions and outside funding to sustain journal and monographic collections. Recognizing the need to offer alternatives to local ownership of titles, libraries also improved document delivery systems and expanded consortium buying agreements, whereby one institution supplies other members with access to certain materials in return for access to other resources.

Even as libraries protested serial price increases, and as they continued to cancel titles, these *voice* and *exit* strategies were significantly eclipsed by library *loyalty* to sustaining the serials for their faculty. It became obvious that, absent the more active involvement of the faculty, library-based strategies would have little if any impact on the price-setting strategy of commercial publishers. It also became clear that there could be a negative impact on the long-term health of the library collection.

This was not a problem that could be solved solely via the library; this problem affected all the stakeholders in the system of scholarly communication. To change the system, it was essential to secure the awareness and involvement of faculty authors and editors in order to encourage them to raise their *voice* and to *exit*. After more than a decade of assembling data to demonstrate the problem, talking about the problem to stakeholders, and seeking allies to influence a positive change in the system of scholarly communication, the strategy is now showing signs of success.

The Emerging Faculty Response

Following are overviews of three developments in the field of economics, where faculty, dissatisfied as customers of commercial publishers, are taking action by initiating new and innovative publishing outlets that pledge to keep subscription fees at levels sustainable by the academic audiences they serve. In Hirschman's framework, it is now the faculty demonstrating a *voice* and *exit* strategy.

Berkeley Electronic Press

The first initiative is The Berkeley Electronic Press, or Bepress.com <http://www.bepress.com/>. Recognizing the dilemma previously outlined, Robert Cooter, the Herman Selvin Professor of Law at UC Berkeley, was frustrated by a 400% price increase of the journal he edited—an increase without any corresponding rise in revenues to authors, reviewers, or editors—after it was absorbed by publishing giant Reed-Elsevier. Working with two other Berkeley professors, Aaron Edlin and Benjamin Hermalin, and with David Sharnoff, a computer programmer, Bepress.com was formed.[6]

With a December 2000 official inauguration, Bepress.com has a unique Quality-Rating System that determines *where*—not whether—a meritorious article will be published. Typically, Bepress.com journals are comprised of multiple titles. For example, *The B.E. Journals in Macroeconomics* is comprised of four unique titles: *Frontiers, Advances, Contributions*, and *Topics*. Each of these four titles are arranged by merit, similar to the practices of print journals, according to the following definitions:

- *Frontiers*: Suitable for publication in a top general interest journal.
- *Advances*: Suitable for publication in a very good general interest journal or a top field journal.
- *Contributions*: Suitable for publication in a very good field journal.
- *Topics*: Worthy of publication in an academic journal.

For an author, the process includes the benefits of:

1. Dealing with only one submission.
2. Avoiding delays by not requiring another set of referees to read the paper.
3. Enjoying greater autonomy. Authors are not required to revise and resubmit an article, unless the reviewer and editors believe that revision will upgrade the choice of journal in which it will be published.

Another innovation is the review system itself, known as the "Authors and Reviewers Bank." This system works on two principles: either an author pays a review fee or, after submitting an article, he or she is required to pay back the "bank" by providing as many reviews as he or she receives. If a debtor does not review an article within a stipulated period of time, he/she is required to pay a compensation fee. In sum, the system creates a situation in which a reviewer is required to provide the same accurate and timely work on others' papers as was shown to his or her own article or face a fee.

As to the terms of copyright practiced at Bepress.com, it is the editors of the journals who make the final determination. However, the press strongly encourages editors to follow an author-friendly model, such as that employed by *The B.E. Journals in Macroeconomics* and *The B.E. Journal in Theoretical Economics*. For example, the author is not asked to assign copyright to the press, but is asked to grant Bepress.com a perpetual right to archive, publish, and republish the article as well as the right to make the article part of anthologies and to disseminate the article in other digital formats. The author is also asked to grant Bepress.com exclusive electronic rights for one year, with certain exceptions for personal use, such as the author's personal website or non-commercial course website.

The Bepress.com mission statement addresses its pricing philosophy: "We aim to put the reader and scholarly author into direct contact at low cost without error or delay."[7] Currently, access to Bepress.com journals is free. At a later date access will be restricted, with plans calling for individual and institutional subscriptions.

ELSSS

A similar set of circumstances led Dr. Manfredi M. A. LaManna, a specialist in industrial organization at the University of St Andrews in Scotland, to launch an alternative publishing initiative with university and government support. Known as ELSSS, the Electronic Society for Social Scientists, it is a nonprofit society with a mission to "improve scientific communication in the social sciences, especially by the provision of electronic publications of high quality, wide diffusion and low cost for the direct benefit of the academic community."[8]

ELSSS <http://www.elsss.org.uk/> takes direct aim at Reed-Elsevier, the Anglo-Dutch publishing giant that has raised subscription prices for European subscribers even higher than for those in North America.[9] The initial discipline addressed by ELSSS is economics. Currently, the ELSSS collection of 12 titles is available. Unique to this experiment is a set of six criteria that the founders have established to attain more equitable and efficient journal publishing in economics. The criteria are:

1. **High quality.** ELSSS will be publishing only high-quality journals.
2. **Equity.** ELSSS will produce and distribute journals efficiently on a non-profit-making basis, distributing any net surplus compatible with wide diffusion to authors, referees, and editors.
3. **Wide diffusion.** One of the most deleterious effects of the recent trend of soaring journal pricing by some commercial publishers has been the creation of a three-tier system, made up of 1) the very few libraries that have maintained periodical portfolios in the face of increasing subscriptions; 2) a large number of libraries forced to reduce journal collections to accommodate increased subscriptions; and 3) libraries that have been priced out of journal acquisition altogether. In contrast, ELSSS will enable all researchers (students and faculty) at subscribing libraries full access to its journals at substantially lower prices than comparative commercial journals. In addition, ELSSS will allow, free of charge, full access to all libraries and research centers in developing and transforming economies.
4. **Innovation.** ELSSS will strive to offer true state-of-the-art electronic services, including interactivity, full searchability, citation tracking, etc.
5. **Privacy and transparency.** ELSSS is committed to upholding the strictest standards of respect for individual privacy and for institutional transparency. Data on and/or from individuals will be treated always as strictly confidential: under no circumstances will individual data be released to any third party, unless the individuals concerned explicitly and directly agree to any such release. On the other hand, ELSSS will grant the widest publicity and access to its own institutional data and structures, including data on circulation, pricing, remuneration, expenses, staffing, etc.
6. **Defense of authorship.** ELSSS aims at strengthening the proprietary rights of authorship by giving authors full copyright to all their material published in ELSSS journals and by ensuring the fair use of electronic resources.[10]

Economics Bulletin

The third initiative is the journal *Economics Bulletin* <http://www.economicsbulletin.com/>. This international effort (based at the University of Illinois at Urbana) is explicitly designed to replace another of Reed-Elsevier's journals: *Economics Letters*. In the view of *Economics Bulletin* editors, *Economics Letters*, through its high price ($1,492), 8–12 month publishing delays, and restrictive policies regarding content and copyright, has failed in its mission as an outlet for the wide and quick dispersal of new ideas.

As with the previous two initiatives, *Economics Bulletin* recognizes the damage that excessive price increases have wrecked not only upon large research university collections, but also sees the manner in which colleges and institutions in developing nations have all but been locked out of the information revolution. The *Economics Bulletin* website takes a matter-of-fact approach to the consequences of commercial publishing. The journal's mission statement declares: "Traditional commercial publishers must make a priority of restricting access to information to those who have paid for the privilege. This necessarily puts them at odds with authors of research who benefit from the widest possible dissemination of their work." The statement goes on to announce that the *Economics Bulletin* will be made available completely free of charge to all users: "Since subscription fees serve to exclude people from access, [we] do not intend to use them now or in the future. Modest submission fees will eventually cover the costs of the site."[11]

By definition, a letters journal is rapid reporting of ongoing research programs. Toward this end, *Economics Bulletin* aims to speed up the review process. In this case, the referees are asked to make only an up or down recommendation, with short explanations if possible. Requests for revisions will be the exception. The goal is to make decisions on submitted pieces within eight weeks and accepted papers will be published immediately. The *Economics Bulletin*'s approach to copyright is to ask for the author's permission to publish the piece and to allow the authors to retain all other rights.[12]

Future Trends: More *Voice*, More *Exit*

In Hirschman's framework of *loyalty*, *voice*, and *exit*, these three new faculty publishing initiatives in economics, coupled with much more aggressive cancellation of journal subscriptions, might provide commercial publishers with the needed impetus to work within a more competitive framework.

Libraries and their institutions could help accelerate this change by redoubling their efforts to promote alternative publishing outlets such as Bepress.com, ELSSS, and *Economics Bulletin* to faculty authors. One way this could be done is via outreach to campus faculty to inform them about these new publishing options. Of course, the success of this strategy is dependent on the readiness of the institution to embrace electronic publishing initiatives. Tenure review committees need to recognize the peer review processes of new, electronic presses as equally legitimate as the traditional systems in use with print journals. This is a culture change that needs active support from throughout the institution, including especially the academic leadership of the provost, deans, and senior faculty. There are other things, however, that the library could take the lead on.

Libraries can make these new and innovative resources readily accessible as part of library collections. For example, all three of the new publishing ventures described in this article could be prominently featured on the library's web page that describes economics research resources.

Libraries are very well positioned to partner with faculty in stimulating, supporting, and using these and other new innovative and affordable publishing outlets. Library outreach to local faculty may also identify editors who are ready to consider engaging in these projects or in similar projects for other disciplines. The library can encourage any spark of interest by connecting faculty with resources that guide editors and editorial board members toward responsible journal publishing.[13] Two of the three alternative outlets described above are not restricted to the economics discipline. Both Bepress.com and ELSSS describe their scope as much broader. These could serve as publishers for other faculty who are ready to exercise their *exit* strategy from publishers that offer unsatisfactory service.

And finally, libraries can position themselves to support the faculty *exit* strategy very directly by providing the infrastructure needed by such initiatives. This is a new role for libraries, but one the organization can be very well suited to in order to speed change that is positive for higher education and research.

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[1] Theodore Bergstrom, UCSB Economics, "Free Labor for Costly Journals," in PDF format: <http://www.econ.ucsb.edu/~tedb/Journals/jeppdf.pdf> or as a Postscript file: <http://www.econ.ucsb.edu/~tedb/Journals/jeprevised.ps> (8 March 2001). Forthcoming in *The Journal of Economic Perspectives*.

[2] Ibid.

[3] "Measuring the Cost Effectiveness of Journals: The Wisconsin Experience," *ARL: A Bimonthly Report on Research Library Issues and Actions from ARL, CNI, and SPARC* 205 (Aug. 1999), <http://www.arl.org/newsltr/205/wisconsin.html> (8 March 2001).

[4] *Report of the ARL Serials Prices Project* (Washington, D.C.: Association of Research Libraries, 1989).

[5] For an overview of library responses to the spiraling costs of journals, and pointers to detailed reports, see the ARL Office of Scholarly Communication website <http://www.arl.org/scomm/>. See especially "To Publish and Perish," a special issue of *Policy Perspectives* 7.4 (March 1998), <http://www.arl.org/scomm/pew/pewrept.html> and the Library Materials Budget Survey conducted for the ALCTS/CMDS/Chief Collection Development Officers of Large Research Libraries Discussion Group (CCDO's) since 1986/87, <http://www.arl.org/scomm/lmbs/index.html>.

[6] To date, the Bepress.com system has been widely supported in the field of economics and, according to one source, will bring "cutting-edge research to the public in a timely manner without undermining the peer-review process" (Laura D'Andrea Tyson, quoted in "E-conomic Publishing," *The Economist* 356 [5 Aug. 2000]: 69).

[7] Bepress.com, *About bepress.com*, <http://www.bepress.com/aboutbepress.html> (4 April 2001).

[8] ELSSS, *Welcome to the ELSSS*, <http://www.elsss.org.uk/> (30 March 2001).

[9] ELSSS, *Table Comparing Subscription Rates for Elsevier & Non-commercial Journals*, <http://www.elsss.org.uk/survey/table1.html> (12 March 2001).

[10] ELSSS, *An Alternative Template*, <http://www.elsss.org.uk/survey/section2.html> (14 March 2001).

[11] Economics Bulletin, *Mission*, <http://www.economicsbulletin.uiuc.edu/Mission.asp> (16 March 2001).

[12] Economics Bulletin, *Copyrights*, <http://www.economicsbulletin.uiuc.edu/Copyright.asp> (4 April 2001).

[13] For example, the SPARC/TRLN *Declaring Independence* booklet, a how-to handbook and website, and the ARL/SPARC/ACRL Create Change website, located at <http://www.arl.org/sparc/di/> and <http://www.createchange.org/>, respectively.

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STATISTICS AND MEASUREMENT

Martha Kyrillidou, Senior Program Officer

SYMPOSIUM ON MEASURING LIBRARY SERVICE QUALITY

by Martha Kyrillidou, ARL Senior Program Officer for Statistics and Measurement, and Kaylyn Hipps, ARL Web Developer and Analyst

On 20-21 October 2000 in Washington, D.C., the ARL-sponsored symposium "The New Culture of Assessment in Academic Libraries: Measuring Service Quality" was held to address the increasing interest in identifying new tools for assessing library performance. The meeting—which attracted 180 participants—featured an international array of experts in performance measurement, organizational effectiveness, and service quality. The program's intent was to help the academic library community better understand the strengths and limitations of implementing service quality assessments. The program also provided a forum for an informed exchange of theoretical frameworks for measuring service quality and for considering the practical implications of implementing service quality measurements in libraries. Finally, it served to highlight the larger context surrounding the emerging ARL pilot effort known as LibQUAL+, a research and development project undertaken to define and measure library service quality across institutions and to create useful quality-assessment tools for libraries.

The new culture of assessment is a response to the increasing competition facing research and academic libraries, as well as higher education in general, in a fast-changing, information-rich environment. Research libraries are being called to both demonstrate outcomes in areas important to the institution and to maximize the use of resources. The goals of assessment include an organizational willingness to: embrace progressive change, identify best practices, learn from one another, and improve library operations and current practice.

International Research

The culture of assessment in libraries has strong international dimensions, as was evident from the presentations of Philip Calvert and Rowena Cullen (Victoria University of Wellington, New Zealand), Roswitha Poll (Universitäts- und Landesbibliothek Münster, Germany), and Ian Winkworth (University of Northumbria at Newcastle, U.K.). The symposium revealed much potential for international collaboration on assessing library service quality. For instance, Calvert reported on a cross-cultural study comparing perceptions of service quality among library users in New Zealand and China and unequivocally concluded that there are global commonalities in the way users think about library service quality.

SERVQUAL and Other Service Quality Assessment Efforts

The service quality assessment movement in U.S. research libraries has been influenced by the conceptual model of service quality developed by Valarie A. Zeithaml, A. Parasuraman, and Leonard L. Berry.[1] The SERVQUAL model (see figure) identifies five potential gaps between expectations and perceptions, both internal and external, of service delivery. Gap 5—the gap between customers' expectations and perceptions of the quality of a service—is the most user-focused gap and is the one that is most frequently measured. Keynote speaker Parasuraman (University of Miami) walked symposium participants through an extensive discussion of the SERVQUAL stream of research, including how to develop an understanding of the service quality dimensions being measured in various sectors of the economy and related methodological issues regarding measurement scales.

Service quality improvement efforts have gained popularity over the last decade in many research libraries and SERVQUAL is not the only assessment tool being used in these efforts. Pioneering research conducted by Danuta Nitecki (Yale University) and Peter Hernon (Simmons College), for example, has influenced the way research libraries are implementing assessment efforts.[2] Service quality assessment has been implemented in libraries at various levels, ranging from specific service operations to organization-wide efforts. Despite the progress made over the last decade in emphasizing the user perspective, Shelley Phipps (University of Arizona) reminded us that libraries are still far from being customer driven operations—they are largely internally focused. Systematic efforts are needed to help libraries "listen to their users' voices," she insisted. Rowena Cullen also encouraged libraries to *act* on the results of quality assessment efforts, noting that, though we have a good understanding of the important library quality dimensions, we lack a demonstrated ability to act quickly on what users value.

LibQUAL+

The second day of the symposium was devoted to presentations related to the ARL LibQUAL+ project. Results from the spring 2000 pilot effort were presented by the LibQUAL+ design team and by representatives from two of the libraries that participated in the pilot. LibQUAL+ aims to understand how users think about and evaluate libraries. It is based on the idea that, if we want to improve libraries, we need to build upon a framework of users' perceptions and expectations. The pilot data have shown that library users perceive library service quality on different levels—they simultaneously perceive libraries holistically and on a more detailed level that embraces the separate dimensions of empathy, place, collections, reliability, and access.[3]

One of the key issues that LibQUAL+ addresses is the need for a balance between a global understanding of users' needs and a local understanding related to specific services, locations, or user groups. LibQUAL+ attempts to develop a protocol that is scalable and yet is also useful for local planning and decision making. The results from the spring 2000 pilot showed that participating libraries were able to use the data for both diagnostic and comparative purposes. They were able to identify specific service areas that needed further improvement (for example, service to graduate students in the health sciences). At the same time, the libraries developed an understanding of how their institution compared to similar institutions and how the LibQUAL+ assessment effort relates to other large-scale assessment efforts they have in place.

In his presentation, Bruce Thompson (Texas A&M) defined several elements that the LibQUAL+ assessment protocol will be able to afford research libraries and possibly others. These include:

- An empirically validated and recoverable structure of the dimensions of user perceptions of research library service quality.
- An understanding of the relation between the holistic impression of library service quality and its more nuanced dimensions—i.e., What do we omit when we interpret the data at different levels of analysis?
- An understanding of psychometrically stable and reliable scores and of acceptable response rates.
- Development of standardized scores and/or normative data for descriptive or benchmarking purposes, applicable to individuals or to campuses.

As Thompson pointed out, the elements of his vision may not be necessarily what the community will adopt in the end, but they do point to possible future directions for library assessment from the user perspective.

In his commentary on LibQUAL+, Parasuraman observed that sharing results across the organization and involving all staff members in discussions about the meaning of user perceptions and expectations is a valuable educational exercise. Library staff, he noted, bring a richness of experience in the interpretation of service quality data and in implementing suggestions for bridging the gaps; staff input can be unparalleled in re-energizing the organization.

Parasuraman also remarked that LibQUAL+ and similar instruments and methods are not appropriate for creating and implementing *new* services. That is, these tools are useful for transactional as well as total market surveys of *current* users of *current* services; they are not appropriate for understanding what consumers will need in the future. Other methods, such as small-scale experimentation and implementation and case studies, are more appropriate for implementing new services for new users.

Electronic Service Quality Assessment

Parasuraman further discussed his vision of electronic service quality assessment. Since the late 1990s, the SERVQUAL stream of research has focused on studying how technology affects service delivery. Emerging technology is assuming a growing role in serving users, thus, understanding users' *technology readiness* has become increasingly important. Technology readiness refers to people's "propensity to embrace and use new technologies for accomplishing goals in home life and at work." There are currently tools like the Technology Readiness Index (TRI) and conceptual frameworks in place for understanding and measuring electronic service quality (e-SQ).

The current dimensions of e-SQ include attributes such as:

- Access: the ability to get to the site quickly and to reach the organization as needed.
- Efficiency: the site is simple to use and requires a minimum of information to be input by the user.
- Personalization/customization: how much and how easily the site can be tailored to a customer's preference and search history.
- Security/privacy: protection of personal information, and transactions being safe from intrusion.
- Site aesthetics.
- Reliability.
- Responsiveness.

As these frameworks are developed further, they will influence the way libraries evaluate electronic delivery of services as well as delivery of digital library services. Additionally, e-SQ could influence the development of the LibQUAL+ protocol.

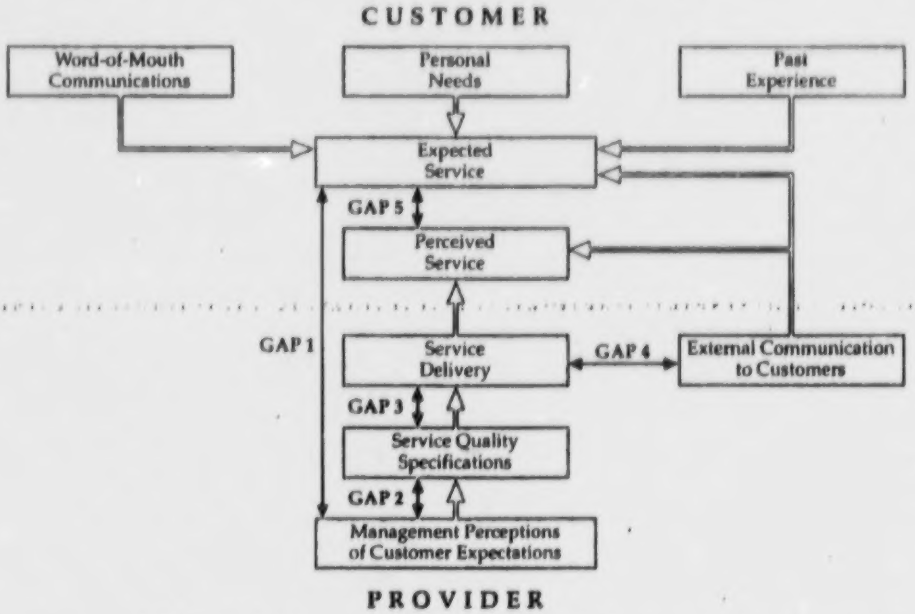
Prescriptive vs. Descriptive Standards

With assumed agreement on the important dimensions comprising library service quality, the meeting concluded with a panel discussion regarding standards related to these dimensions. In particular, the presenters discussed the development of prescriptive, absolute standards tied to specific behavioral elements (for example, fulfilling information requests within a specified amount of time) versus the use of descriptive standards that provide a context for a specific library's scores. The point was made that data on user perceptions, such as those collected via LibQUAL+, should not be seen as value judgments or as indicators for defining "good" or "bad" service, but rather as indicators for understanding institutional and user differences and similarities.

Ongoing Research

Duane Webster (ARL) delivered the symposium's closing remarks, observing that this event showcased much of the work that has gone into measuring library service quality

CONCEPTUAL MODEL OF SERVICE QUALITY


CUSTOMER
Word-of-Mouth Communications
Personal Needs
Past Experience
Expected Service
GAP 5
Perceived Service
GAP 1
Service Delivery
GAP 4
External Communication to Customers
GAP 3
Service Quality Specifications
GAP 2
Management Perceptions of Customer Expectations
PROVIDER

Source: A. Parasurman, "The SERVQUAL Model: Its Evolution and Current Status," keynote address delivered at "The New Culture of Assessment in Academic Libraries: Measuring Service Quality Symposium," 20-21 October 2000, Washington, D.C. <http://www.arl.org/libqual/events/oct2000msq/program.html>.

while also revealing that much work remains to be done. With funding from the U.S. Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE), ARL will continue to develop LibQUAL+ through 2003. The goals of the funded project are to: (a) establish a library service quality assessment program at ARL; (b) develop web-based tools for assessing library service quality; (c) develop mechanisms and protocols for evaluating libraries; and (d) identify best practices in providing library service. Future opportunities for sharing and learning about developments in library assessment are the 4th Northumbria International Conference on Performance Measurement in Libraries and Information Services, to be held 12-16 August 2001 in Pittsburgh,[4] and the ARL workshop led by Parasuraman and the LibQUAL+ team, "New Ways of Listening to Library Users: Tools for Measuring Service Quality," to be held 22-23 September 2001 in Seattle.[5]

For more information on LibQUAL+, see <http://www.arl.org/libqual/>. To participate in LibQUAL+, contact Kaylyn Hipps, ARL Web Developer & Analyst, <kaylyn@arl.org>. Slideshows and drafts of the papers delivered at this meeting are available on the symposium website at <http://www.arl.org/libqual/events/oct2000msq/program.html>; final versions of the papers will be published as Library Trends *(spring 2001). Selected video and audio clips of the presentations will be available on the symposium website in the near future.*

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[1] Valarie A. Zeithaml, A. Parasuraman, and Leonard L. Berry, *Delivering Quality Service* (New York: The Free Press, 1991).

[2] See, for example, their article "Measuring Service Quality at Yale University's Libraries," *The Journal of Academic Librarianship* 26.4 (July 2000): 259-73.

[3] For more information, see Colleen Cook, Fred Heath, and Bruce Thompson's "LibQUAL+: One Instrument in the New Measures Toolbox," *ARL* 212 (October 2000): 4-7 <http://www.arl.org/newsltr/212/libqual.html> and, "Users' Hierarchical Perspectives on Library Service Quality: A 'LibQUAL+' Study," *College and Research Libraries* 62.2 (March 2001): 147-53.

[4] See <http://www.arl.org/stats/north/index.html>.

[5] See <http://www.arl.org/libqual/events/listen/>.

ARL-QUALITY

To track ARL activities regarding library service quality assessment, subscribe to the <arl-quality> electronic distribution list. Send e-mail to <listproc@arl.org> with the following text in the body of the message (leave the subject line blank): subscribe ARL-QUALITY *your full name*

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April 2001

ARL CALENDAR 2001

April 30–May 18	Coaching for Performance *Online Lyceum Course*
May 3–4	New Ways of Listening to Library Users: Tools for Measuring Service Quality *Washington, DC*
May 7–18	Goal Setting *Online Lyceum Course*
May 14–16	Facilitation Skills Institute *Kansas City, MO*
May 22–25	**ARL Board and Membership Meeting** *Toronto, Ontario*
June 6–8	Managing Group Process: Advanced Facilitation Lab *Chicago, IL*
June 7–8	From Data to Action *Washington, DC*
June 25–August 3	Measuring Library Service Quality *Online Lyceum Course*
June 27–29	Building on Strength: Developing an ARL Agenda for Special Collections *Brown University* *Providence, RI*
July 23–24	**ARL Board Meeting** *Washington, DC*
August 12	Creating a Culture of Assessment Workshop *Pittsburgh, PA*
August 12–16	4th Northumbria International Conference *Pittsburgh, PA*
August 13–14	Licensing Workshop *Novi, MI*
August 18–24	IFLA Annual Conference *Boston, MA*
September 22–23	New Ways of Listening to Library Users: Tools for Measuring Service Quality *Seattle, WA*
October 10–12	Library Management Skills Institute I: The Manager *San Antonio, TX*
October 16–19	**ARL Board and Membership Meeting** *Washington, DC*
November 7–9	Project Management Institute: Getting Things Done or Getting the Outcomes You Want *Raleigh-Durham, NC*
November 8–9	Shaping ILL/DD Services for the 21st Century *University of Michigan/ARL* *Ann Arbor, MI*
November 12–13	Creating a Culture of Assessment Workshop *Washington, DC*
November 29–30	CNI Fall Task Force Meeting *San Antonio, TX*

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ARL

A BIMONTHLY REPORT ON RESEARCH LIBRARY ISSUES AND ACTIONS FROM ARL, CNI, AND SPARC

June 2001

216 SPECIAL ISSUE: AT A SLIGHT ANGLE TO THE UNIVERSE

AT A SLIGHT ANGLE TO THE UNIVERSE:

THE UNIVERSITY IN A DIGITIZED, COMMERCIALIZED AGE[1]

by William G. Bowen
The Romanes Lecture for 2000
Delivered before the University of Oxford on October 17, 2000

It would be a great privilege for anyone—and it is an especially great privilege for a sometime academic from across the sea—to give the Romanes Lecture. To be joined, in even a small way, to such a distinguished list of predecessors, going back to Gladstone and including many scholars whose writings I have long admired, is a most humbling experience. Adlai Stevenson once remarked that "flattery is all right—if you don't inhale" (a phrase since made memorable by another American with Oxford connections).

Definitions and Themes

The title I have chosen for this lecture, "At a Slight Angle to the Universe," is taken from E. M. Forster's description of the Greek poet Cavafy. I will return to the title at the end of the talk, when it will be clearer, I think, why I have chosen it. My purpose today is to consider the implications for the university of two powerful, intersecting forces: the revolution in information technology that is so pervasive (on which I will concentrate), and the associated, but distinct, increase in reliance on the market to solve problems of all kinds.

Let me begin by proposing working definitions of our key concepts that may help to clarify why "digitization" and "commercialization" are inevitably linked and why, together, they propel the university into a new world. It is useful to remember that, despite all the hyperbole, *things*, even in this new age, will continue to be *things*. As Professor Negroponte of MIT has put it, "If you make cashmere sweaters or Chinese food, it will be a long time before we can convert them to bits."[2] But universities are not known for their steamed dumplings. Rather, they have long been concerned with intangibles: ideas, concepts, and knowledge. Their "products" draw upon information and are packaged as information—which, unlike dumplings, can be broken down into the digital equivalent of atoms. When this is done, the life of the university changes in profound ways: students and faculty are now surrounded by e-mail, Web sites, electronic archives, search engines, voice and image transmission, and the wonders of Internet2. So, for the purposes of this talk, I use "digitization" to mean the electronic assembling, disassembling, and transmitting of the basic elements of intellectual capital. These include words, sounds, pictures, and data. The ability to take these sources apart, send them easily over distances, and reconstruct them renders the walls around universities far more porous.

Once those wall are pierced in this way—that is to say, once both the basic materials and the fruits of the work of academic institutions are easily gathered and sent—the very currency of the university becomes dramatically more accessible, and these institutions find themselves drawn increasingly into the realm of commerce. New economic possibilities abound—especially in an age when the market is king and everything (or nearly everything) seems to have a price and to be for sale. As Thomas Friedman writes in his recent book on globalization, "Ideologically speaking, there is no more mint chocolate chip. There is no more strawberry swirl, and there is no more lemon-lime. Today there is only free-market vanilla.... In the end, if you want higher standards of living in a world without walls, the free market is the only alternative left."[3]

Innumerable manifestations of the broadening reach of market mechanisms are seen on many campuses, certainly in the United States. The universities themselves have become highly sophisticated in collecting large streams of revenue from the licensing of patent rights; faculty increasingly expect to be paid extra not only for developing patentable inventions but also for helping to create e-commerce "products"; many graduate students want to be regarded as paid employees and to affiliate with old-style industrial unions like the United Auto Workers; and students seem to require the promise of compensation (in such exotic forms as chances to win mountain bikes) to cooperate with survey research.[4] I suspect that it would be easy to add examples drawn from the United Kingdom.

By "commercialization," thought about in this context, I mean the changing way in which the wares of the academy are transferred from one person (or one entity) to another—not solely through interactions in cloistered realms devoted to the free exchange of ideas, but also in settings where ideas and information are bought and sold like wooly goats and port wine. "Commercialization," in this setting, has at least a mild connotation of impurity. The selling of autos is not regarded as "commercialization"; that transaction is, and always has been, "commercial." Places or products that are "commercialized" are those—at least to my ear—that have not always been subject to the dictates of the market and, some would argue, ought not to be. Let us remember that there is a deep ambivalence in the relationship between the university and the market—there always has been and always will be. *Scientia gratia Scientiae* may be the mantra for certain individuals and for certain fields at certain times, but institutions that depend on external support have never been that pure. What digitization does is accelerate the possibilities and the pace of commercial trafficking. When both

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FROM PAGE 1

[1] I am grateful to David H. Bayley, John D'Arms, Ira Fuchs, Sarah Levin, Pat McPherson, Thomas Nygren, Roger Schonfeld, James Shulman, Dennis Sullivan, Michele Warman, and Harriet Zuckerman for helpful comments and suggestions.

[2] Nicholas Negroponte, *Being Digital* (New York: Alfred A. Knopf, 1995), p. 12.

FROM PAGE 2

[3] Thomas Friedman, *The Lexus and the Olive Tree* (London: HarperCollins, 1999), p. 86.

[4] Karen W. Arenson, "Columbia Sets Pace in Profiting Off Research," *New York Times*, August 2, 2000, p. B1; and Dan Carnevale and Jeffrey R. Young, "Who Owns On-Line Courses? Colleges and Professors Start to Sort It Out," *Chronicle of Higher Education*, December 17, 1999, p. A45. See also Catherine R. Stimson's insightful article on the NYU graduate student situation ("A Dean's Skepticism about a Graduate-Student Union," *Chronicle of Higher Education*, May 5, 2000, online edition). Information on rewards necessary to elicit cooperation with survey research is taken from personal correspondence with Professor Michael Nettles of the University of Michigan. One alumni survey listed a trip to Paris as a prize.

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new techniques and digitized content can pass so easily through walls as beautiful as those around us, the possibilities for transforming *intellectual* capital into *capital* capital provoke a most challenging set of questions.

A principal theme of this lecture is that universities are not businesses (though they have many businesslike aspects). They are highly unusual institutions with missions and attributes unlike those of any other entity in either the for-profit or the not-for-profit world. Society depends on them to do much more than produce "products" at a fair price. In keeping with most other economists, I love the market (it is, as it were, "our baby"). But I also know the limits of markets as definers of values and allocators of resources, and one of my greatest concerns is that, either inadvertently or by design, universities will be so bemused by market opportunities that they will lose sight of, or downplay, their most essential purposes. These include educating students broadly so that they may lead productive lives in a civilized society; serving as engines of opportunity and social mobility; creating new knowledge of every kind, including work that either has no immediate market value or may even threaten some commercial end; encouraging and protecting the thoughtful critic and the dissenting voice; and defending cultural, moral, and intellectual values that no one can "price" very well.

If these venerable institutions become too market-driven, and come to be regarded in too instrumental a way (by themselves as well as by others), they could lose the distinctive "angle to the universe" that they need to retain if they are to function at their best. This does not mean, however, that they can or should turn away from their new opportunities. The key, as I will argue throughout this lecture, is to define and defend the right "middle ground," even as we recognize that, as Isaiah Berlin said in an earlier Romanes Lecture, it is "a notoriously exposed, dangerous, and ungrateful position."[5]

The Growing Importance of the University—And Attendant Pressures on It to "Perform"

Before discussing both the opportunities and the dangers before us, let me pause and remind us, ever so briefly, of why we are playing for such high stakes in debating the role of the university in a digitized and commercialized age. I can be very brief because the basic points are so well understood. In essence, the revolution in information technology and the unforgiving nature of today's international competition combine to enhance the value of well-functioning educational systems. Statesmen and politicians everywhere understand that individuals and countries that fall off the "learning curve" (or that operate below its higher reaches) will pay a steep price.

I need do no more than reference the substantial body of literature that documents the purely economic returns to investments in higher education.[6] It is easy to understand intuitively that human capital will be more highly valued in an information-intensive world than in a world dependent in greater degree on manual labor and inherited capital. Seen in this light, universities are perceived—correctly—as societal assets of immense value. They will be heavily responsible, for better or worse, for how well societies make material provision for their citizens.

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[5] Isaiah Berlin, "Fathers and Children: Turgenev and the Liberal Predicament," Romanes Lecture, reprinted in three parts in the *New York Review of Books*, October 18, November 1, and November 15, 1973; quote appears in Part III, November 15, 1973, p. 9.

[6] Such returns are reflected, albeit imperfectly, in pay differentials associated with different levels of educational attainment, calculations of private and societal returns, and estimates of the spillover benefits of investments in both education and research. Some of the major works in this field include Gary S. Becker, *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, 3rd ed. (Chicago: University of Chicago Press, 1993); Richard Brundell, Lorraine Dearden, Alissa Goodman, and Howard Reed, "Higher Education, Employment and Earnings in Britain" (London: Institute for Fiscal Studies, 1997); Edward F. Denison, *Accounting for United States Economic Growth, 1929–1969* (Washington, D.C.: Brookings Institution Press, 1974); Richard B. Freeman and Lawrence F. Katz, "Introduction and Summary," in *Differences and Changes in Wage Structure*, Richard B. Freeman and Lawrence F. Katz, eds. (Chicago: University of Chicago Press, 1995), pp. 1–24; Claudia Goldin and Lawrence F. Katz, "The Returns to Skill in the United States across the Twentieth Century," Working Paper 7126 (Cambridge, Mass.: National Bureau of Economic Research, 1999); Susan Harkness and Stephen Machin, "Graduate Earnings in Britain, 1974–95," Research Report 95 (London: Department for Education and Employment, 1999); John Schmitt, "The Changing Structure of Male Earnings in Britain, 1974–1988," in *Differences and Changes in Wage Structure*, Richard B. Freeman and Lawrence F. Katz, eds. (Chicago: University of Chicago Press, 1995), pp. 177–204; and James Steel and Colin Sausman, "Report 7: The Contribution of Graduates to the Economy: Rates of Return," Report to the National Committee of Inquiry into Higher Education, headed by Sir Ron Dearing, 1997, www.leeds.au.uk/educol/ncihe/report7/htm.

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But this is not the only reason that they matter so much. In last year's Romanes Lecture, Mr. Blair gave equal attention to the *social* case for investments in education. He emphasized what he called "the price of missed opportunities"—for individuals as well as for society.[7] Even those of us sheltered in New York are aware of subsequent discussions in this country about admissions policies at a certain well-regarded British university—a topic I will avoid altogether except to note how sad it is when discussions of serious subjects appear to depend so heavily on argument by anecdote and incomplete information. In any event, large numbers of us will surely agree that in a digitized and commercialized age it is even more important than it was before that access to the most prized educational opportunities be made available to individuals of ability and ambition from every background. How best to pursue equal opportunity in ways that strengthen, not weaken, colleges and universities is a huge subject all its own that I cannot pursue today, except to note that whenever anything increases in value we naturally care more about who gets it.

New Opportunities for Scholarship and Teaching in a Digital Age

Universities must pay careful attention to digitization for the simple reason that it will provide innumerable new opportunities to improve and extend teaching and research, and it is these opportunities, some of which I will now outline, that have to be balanced against the associated temptations and risks, many of which have a commercial dimension. Web sites and e-mail addresses have become the stuff of daily life, both inside and outside the academy. A cartoon that I have in my office depicts a woman explaining to another woman why she has a patch on each arm: "The patch on the right is for cigarettes; the one on the left is for e-mail."[8] Many walls created by distance, time zones, and the need to work directly with physical objects have been breached, and there is much more to come as new technologies emerge and the costs of hardware, software, and connectivity continue to fall. A colleague speaks of the impending arrival of "omni-connectivity," by which he means the ability to access information *at any time, from anywhere.*[9]

But what kinds of scholarly resources will there be for scholars to access? Hanna Gray, president emeritus of the University of Chicago, has observed that in many respects the electronic content produced by digitization projects often closely resembles the real objects (the "hard copies") from which it was created—much as the first printed books were intended to look as much as possible like the handwritten manuscripts produced in monasteries.[10] But this is, as Professor Gray noted, surely too limited a vision, and I want next to describe just one example of the many new kinds of specialized scholarly resources that can be built with digital technologies (apart from "courseware" and distance learning projects, which I will discuss later). My example is the JSTOR collection of scholarly journals, an electronic archive whose history I know well because the Mellon Foundation initiated its development and I continue to serve as chairman of the not-for-profit entity that is responsible for it. Focusing on the lessons learned from this one project has the advantage of making concrete a number of points that have broad applicability, and I will return to the JSTOR example several times in this lecture.

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[7] Tony Blair, "The Learning Habit," Romanes Lecture, delivered December 2, 1999, esp. pp. 3 and 7.

[8] *New York Magazine*, July 19, 1999, p. 32.

[9] Comment by Ira Fuchs, vice president for research in information technology at The Andrew W. Mellon Foundation, unpublished paper prepared for the trustees of the Foundation.

[10] Professor Gray is the Harry Pratt Judson Distinguished Service Professor of History and president emeritus of the University of Chicago, as well as chairman of the board of trustees of the Mellon Foundation; she made this comment at a dinner for university presidents sponsored by the Hewlett and Mellon foundations.

The JSTOR Collection of Scholarly Journals

JSTOR may be familiar to a number of you. It is a highly searchable electronic archive of journal literature that contains the full contents, back to inception, of over 120 leading scholarly journals in core fields of the arts and sciences—excluding only current issues.[11] The JSTOR archive contains high-resolution images (exact replicas) of more than six million pages of journal literature; additional content is being added every day, and when the earliest issues of the *Transactions of the Royal Society* are digitized later this year, it will be possible to call up on your computer screen some of Newton's first published papers. Although the JSTOR system displays images, it also contains ASCII text files that are used to facilitate searching. Users can submit searches by author, title, or subject, or even by a descriptive phrase; locate relevant articles; and then print them out.[12] Thus JSTOR offers atypically convenient access to the content of a "library" that never reports that an item is "out" (since any number of users can read the same article simultaneously), that delivers articles directly to a person's desk (with no defaced pages), and that never closes.

These features explain why JSTOR has been received so enthusiastically by libraries and the wider scholarly community. Over 850 libraries in 40 countries (including Oxford and 53 others in the United Kingdom) have paid the site license fees required to obtain access to JSTOR. Usage continues to grow at a phenomenal rate—having more than tripled in the United Kingdom over the past twelve months. It is expected that more than 2.5 million articles will be printed from the database in the current calendar year. Usage has been heaviest, not surprisingly, at research-intensive universities such as Oxford (which now ranks among the top ten universities worldwide in terms of its usage of JSTOR). But in many ways the enthusiastic reception of the archive at less well-known places has been even more gratifying. JSTOR provides a small Appalachian college in the United States with the same access to journals such as *Science* and the *Renaissance Quarterly* as is enjoyed by graduate students at Manchester or Stanford. It closes in some degree the "digital divide" by allowing universities in countries such as Mexico, South Africa, Russia, and Greece to acquire a rich repository of journal literature without building space or hiring staff.

The implications for scholarship and teaching are profound. They range from simply making it easier for students to work with important articles to changing fundamentally the literature that faculty and students consult. One side benefit of JSTOR is that it allows us to track the usage made of the journal literature in its database—something that could never be done in a paper-only world. Of the 391,000 full-length journal articles in JSTOR in 1999, over two-thirds (69 percent) were viewed and nearly half (46 percent) were printed at least once in that year. Experience to date has demonstrated, convincingly, that older articles are valuable. The average age of the ten most frequently consulted articles in economics is more than fifteen years; the average age of the most frequently consulted articles in mathematics is more than thirty years. These findings are a useful rebuttal to the line of thought that equates anything electronic with a suspicion, if not a rejection, of old verities. The most basic scholarly contribution of JSTOR may be its ability to "unlock" access to older journal literature.

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[11] To protect the revenue that publishers derive from selling subscriptions to current issues, JSTOR does not provide access to the most recently published content. JSTOR employs a "moving wall" to separate current issues from the backfiles, with the "duration" of the moving wall dependent on the wishes of the publisher.

[12] Just recently the *Economist* reported that Fred Shapiro, a scholar at the Yale Law School, had used JSTOR to identify a first usage of the phrase "software" that predated any previously known citation. "How Software Got Its Name," *The Economist*, June 3, 2000.

Enhancing Course Content and Providing Distance Learning

Although information technology has had, and will have, manifold effects on how scholars do research (and I have not even mentioned applications in the field of science, such as the key role played by computer scientists and sophisticated software in the mapping of DNA, the imaging of art, or the greater ease with which scholars all over the world can collaborate), it will also have major effects on the *teaching functions* of colleges and universities. It is much too early to pass judgment on the wide variety of ways in which electronic technologies are being used to supplement as well as supplant the work done traditionally by the lecturer, but it is evident already that the importance of different technologies varies dramatically from discipline to discipline: animated graphs are particularly useful in fields such as economics and applied mathematics; virtual environments are especially helpful in studying organic systems in biology and medicine; and feedback applications are particularly effective in language teaching and in instruction in proof technique in logic courses.

One interesting research question, directly relevant to the earlier discussion of the implications of information technology for broadened access to educational opportunities, is whether being able to answer questions or participate in discussions via computer, in a more anonymous and less "social" way, is especially helpful to students who may be uncomfortable in traditional settings. I am reminded of another of my favorite cartoons (with which you may be familiar), one showing a large dog at a computer keyboard, looking down at a smaller dog at his feet; the large dog says, "On the Internet, nobody knows you're a dog."[13] A related question is whether the self-paced nature of much instruction of this kind is particularly valuable for disadvantaged students with weaker preparation.

Online enhancements of existing courses grade off naturally into what are sometimes called "cybercourses"—courses in which, according to one definition, "little or no instruction takes place in the traditional physical classroom."[14] As the popular press tells us every day, numerous colleges and universities, including "virtual universities," have established a wide variety of distance learning initiatives. Today 20 percent of students at the United Kingdom's Open University are said to be studying interactively.[15] Other universities, acting alone or in concert, are establishing for-profit subsidiaries to deliver educational content of many kinds, including courses, to essentially all comers. One of the best known is Fathom.com, which was founded by Columbia University in collaboration with the London School of Economics and Political Science, Cambridge University Press, the British Library, the New York Public Library, and the Smithsonian Institution.[16] A Stanford-Princeton-Yale-Oxford alliance is focusing on delivering

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[13] Peter Steiner, *The New Yorker*, July 5, 1993, p. 61. Anonymity apparently encourages increased participation not only by students from disadvantaged backgrounds but also by women. Marion Walton and Stella Clark observed that in an online writing course they taught at the University of Cape Town, women were more likely to contribute to discussions that took place online than those in the classroom. In fact in the online discussions, over 60 percent of the comments were made by women. Marion Walton and Stella Clark, in "Extending Interactivity: Academic Literacy in an Online Writing Environment," www.meg.uct.ac.za/saala.htm.

[14] Peter Navarro, "Economics in the Cyberclassroom," *Journal of Economic Perspectives*, Spring 2000, pp. 119–32. This article contains an extensive survey of experience with one hundred economics cybercourses at nearly fifty institutions and also contains a helpful list of references to other studies.

[15] See www.open.ac.uk/about and www.open.ac.uk/factsheets.NewTech.pdf, as well as Thomas K. Grose, "Distance Education the UK Way" *Prism-Online*, November 1999; and Grenville Rumble, *The Costs and Economics of Open and Distance Learning* (London: Kogan Page, 1997) for information on the costs and quality of the Open University.

[16] More recent additions to the group of collaborators are the University of Chicago, RAND, the American Film Institute, and the Woods Hole Oceanographic Institution.

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specially created course content to alumni and others.[17] Recently the Higher Education Funding Council announced the formation of an "eU" in Britain.[18]

This range of initiatives (and others too numerous to mention) is both promising and risky. But I am not one of those who believe that the residential university is an endangered species. Not at all. For as far ahead as any of us can see, there will be a demand—by which I mean not only a desire, but a desire backed up by the willingness to pay—for an education at both undergraduate and graduate levels that continues to emphasize the informal as well as formal modes of learning that are possible in a collegiate setting. Properly conceived, information technology will enhance, but not replace, traditional modes of teaching and learning. It will also permit the delivery of educational content to a wider variety of others interested in subjects that lend themselves to distance learning—at home and at odd hours.

Commercial Opportunities: The Case for Market Involvement by Universities

Incorporating the motivations of for-profit entities into the institutional fabric of not-for-profit educational institutions is inevitably controversial, and most academics may be more inclined to see the negative side of the argument than the positive side. But whatever one's intuitive feelings, it is useful to recognize four advantages of a commercial approach. The first and most obvious point is implicit in much of what has already been said. Both for-profit offshoots and alliances with for-profit entities such as Pearson and UNext.com may address real financial needs by generating flexible funds that can be used at the discretion of the institution to support its core educational and research purposes. To quote Alan Gilbert, chairman of Universitas 21 and vice chancellor of the University of Melbourne in Australia, "What we want to do is to preserve our universities as the best campus-based institutions in the world where we can continue to offer philosophy and classics and things like that which are hard to pay for in commercial terms, but which you can do if you are well-resourced."[19]

It is hard, however, to assess the potential. John Chambers, CEO and chairman of Cisco Systems, has put forth this claim: "Education over the Internet is going to be so big it is going to make e-mail usage look like a rounding error."[20] His optimism may or may not prove to be well founded. All of these ventures are in such early stages of development that no one can know with confidence how much revenue they can generate. An experienced business executive, Elton White, regularly asks, "But will the dog eat the dog food?" We just don't know, and any number of high hopes could be disappointed.

There is, however, a great deal to be said for seeking to diversify the revenue sources of universities if this can be done in a responsible way. Being overly dependent on government funding or on any single source is problematic from every standpoint: experience in the United States suggests that it is easier to generate large revenue streams from many tributaries— including student fees, industry support, endowments, and current donations—than it is from any single source. (This is one of the main points I tried to make nearly forty years ago when

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[17] Sarah Carr, "Princeton, Stanford and Yale Plan Alliance to Offer Online Courses to Alumni," *Chronicle of Higher Education*, March 17, 2000, p. A47; and Sarah Carr, "U of Oxford to Join Princeton, Stanford and Yale in a Distance-Education Venture," *Chronicle of Higher Education*, September 25, 2000, online edition. Most recently the consortium has announced the selection of Herbert Allison as the CEO of the enterprise, which is now called the "University Alliance for Life-Long Learning." The four participating universities have announced that they will invest $12 million in the alliance, which expects to offer short (noncredit) courses by the end of 2001. If the experiment works, the alliance will offer courses to a broader public, perhaps in a for-profit mode. See Charles Forelle and Michael Horn, "Universities Commit $12M to E-Learning," *Yale Daily News*, September 29, 2000, online edition.

[18] Jim Kelly, "UK Universities Plan Online Global College," *Financial Times*, October 10, 2000, p. 11.

[19] Quoted in Zell Miller, "10 Crucial Things the Next President Should Do for Colleges," *Chronicle of Higher Education*, July 14, 2000, p. B4.

[20] Quoted in Thomas L. Friedman, "Next, It's Education," *New York Times*, November 17, 1999, p. A25.

I was a visitor at the London School of Economics and wrote several papers for the Robbins Commission.)[21] Moreover, diverse sources of funding can protect institutional autonomy by giving institutions greater freedom to decide for themselves what fees they should charge and what salaries they should pay, as well as which students they should admit, what research they should pursue, and what curricula they should offer. In the British context, Alan Ryan, warden of New College, has put the matter this way: "It is essential to bring the marketplace further into the academy. This means allowing colleges and universities to pay faculty what they can afford, and to charge students what they will pay."[22]

A second advantage of commercialization, and one that is often overlooked, has to do with the location and management of risk. A for-profit mode of organization provides a mechanism for raising the capital that is essential to launch projects that require considerable start-up funding—and to do so without putting so many of the core resources of the university at risk. Fathom.com received an initial infusion of funds from its principal academic sponsor, Columbia University, but it is committed to raising the bulk of its working capital from outside investors. If the enterprise fails, Columbia will lose much less money than it would have had it made the entire initial investment itself. Similarly, for-profit investors can save a project that might otherwise die of financial starvation. The co-founders of Africana.com, Harvard University professors Henry Louis Gates, Jr., and Anthony Appiah, have just sold their Web site to Time Warner, Inc., because of their need for long-term financing. In Gates's phraseology, "The revenue model was slow to develop."[23]

Third, market incentives can encourage faculty and others inside the academy—sometimes regarded as too hide-bound, insular, and aloof—to be more responsive to the needs of the larger society. Similarly there is an advantage in being able to look at market comparisons in assessing whether a given service is being provided efficiently. Market tests offer a useful objectivity.

Fourth, well-developed Internet market mechanisms may enable faculty members to reach far wider audiences than would have been possible otherwise. This was a principal reason given by Columbia for the creation of Fathom.com. As its president, George Rupp, put it, "We want to make sure that our core intellectual capital is not picked off by outside for-profit vendors. But for that, we have to be able to say to our faculty that we will devise ways they can communicate with a wider audience, which many of them would like."[24]

Lessons Learned and Warning Flags

I come now to the proverbial other side of the coin: lessons learned to date and warning flags that can be ignored only at one's peril. First on my list is the need to cope with *the rapid pace of technological change*. I am told that computing power continues to follow Moore's law and to double every eighteen months. Video, voice, text, and multimedia are converging in data transmission. Extremely high-speed networks, like the Abilene backbone of Internet2, are enabling new applications. Search techniques are becoming ever more sophisticated. Progress will continue to be made in designing multilingual interfaces. New tools will be developed for linking citations and online documents, for authenticating both electronic documents and users, and for managing intellectual property rights. No technology platform, no technical "fix," stays in place for long.

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[21] William G. Bowen, "University Finance," in *Economic Aspects of Education: Three Essays* (Princeton, N.J.: Department of Economics, Princeton University, 1964), pp. 41–79. Similar arguments have been made frequently in the United Kingdom; see, for example, "Funding Higher Education" in *Higher Education for the 21st Century*, Department for Education and Employment, www.dfee.gov.uk/highed/funding.htm; and "Who Should Pay for Higher Education?" Chapter 18 in report of the National Committee of Inquiry into Higher Education headed by Sir Ron Dearing, 1997, www.leeds.ac.uk/educol/ncihe.

[22] Alan Ryan, "The American Way," *Prospect*, August–September 1999, online edition.

[23] Quoted in David D. Kirkpatrick, "Co-Founders of Africana.com Sell Venture to Time Warner," *New York Times*, September 7, 2000, p. C2.

[24] Quoted in Karen W. Arenson, "Columbia to Put Learning Online for Profit," *New York Times*, April 3, 2000, p. B3.

Nonetheless, in spite of much experience with the recurring transformations of electronic technologies, even knowledgeable people sometimes "forget" the implications. It can be all too tempting to launch a new electronic resource without considering how it is to be maintained. That is a serious mistake. Any project that seeks sustainability must have continuing access to the technical capacity and budgetary resources needed to migrate from one platform to another. In this arena—and in this era—one-time investments are almost certain to be ephemeral. It is well to remember Fuchs's Law, "The time to acquisition is longer than the time to obsolescence," or its corollary, "By the time you get what you ordered, you don't want it."[25]

A second, related, lesson is *the need to be realistic in thinking about costs* and to avoid the ever-present danger of believing that great things can be accomplished "on the cheap." All aspects of the process of creating and delivering electronic content are expensive—which is the main reason that issues of technology interact so directly with issues of cost. The faster the pace of change, the more expensive it is likely to be to keep up. It is not difficult to spend several hundred thousand dollars developing a multimedia course of high quality. Nor can the initial up-front costs be regarded as once-and-for-all expenditures, given constantly changing technology and the recurring need to update materials and modes of presentation.

What is more surprising, and even more important to keep in mind, is the high *variable* cost currently associated with the use of cyberteaching units. One careful observer offers this comparison: "A cyberprofessor trades the 'chains' of lecturing in a classroom for a predictable number of hours at a specific time and place for the more unpredictable 'freedom' of being accessible by e-mail and other technologies.... Many cybercourse instructors find themselves being drawn into an endless time drain."[26] Similarly a faculty report at the University of Illinois suggests that "sound online instruction is likely to cost more than traditional instruction" and that "the scenario of hundreds or thousands of students enrolling in a well-developed, essentially instructor-free online course does not appear realistic."[27] The demise of the California Virtual University is, as the *Chronicle of Higher Education* observed, "a sobering reminder of how hard it is to run a successful 'portal' for online education."[28]

For these and other reasons, all the talk of using technology to "save money by increasing productivity" has a hollow ring in the ears of the budget officer who has to pay for the salaries of a cadre of support staff, more and more equipment, and new software licenses—and who sees few offsetting savings. The experience to date of essentially every college or university official has been that technologically induced gains in "productivity" (defined as output divided by units of input) have almost always been realized in the form of better research, improved access to information, and so on (more output), rather than in the form of savings in inputs.

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[25] Attributed to Ira Fuchs, vice president for research in information technology at the Mellon Foundation.

[26] Navarro, p. 129. On a single campus, at any rate, the economies of scale appear to be far smaller than is generally assumed; several studies have reported that "the marginal cost of servicing each additional student does not fall at anywhere near the same rate as with a traditional course"; Navarro, p. 128.

[27] "Teaching at an Internet Distance," report of a 1998–99 University of Illinois faculty seminar, December 7, 1999, www.vpaa.uillinois.edu/tid/report.

[28] Jeffrey R. Young, "Veteran of California Virtual U. Blames a Flawed Business Plan for Its Demise," *Chronicle of Higher Education*, May 12, 2000, online edition.

But this could change. Even though I am the co-creator of what has come to be known in the literature as "Baumol's disease" or "Bowen's curse" (the notion that costs in service-intensive fields such as education and the performing arts inevitably rise faster than they do in the economy at large),[29] I am now persuaded that electronic technologies can lead to lower costs. There may be at least one "slumbering giant" who could awaken and change the situation quite dramatically—namely, the textbook publishing oligopoly. Textbook publishers have an incentive to invest in further technological development of courseware that should allow artificial intelligence, for example, to take over some of the more repetitive tasks that now require the time of staff and keep variable costs high.[30]

JSTOR is another, quite different, case in point. Although the jury may be out (and out for a long time) on the cost-effectiveness of many types of courseware, some of the electronic resources designed to facilitate scholarship and research can, in principle, lead to substantial system-wide savings. Needless to say, there were significant up-front costs involved in creating JSTOR. There are also recurring costs associated with maintaining the database, adding content each year, keeping current with technological advances, and providing the needed infrastructure (including user services). Fortunately, however, not only does JSTOR improve dramatically the ability of scholars to find and use journal literature, it also offers the prospect of savings for library systems, even after taking account of the user fees that libraries pay.[31]

One important long-term benefit is the opportunity JSTOR offers libraries to economize on stack space. Those that already possess the hard copies of JSTOR journals have the option of moving them out of "prime real estate," which can then be used for other purposes. Going forward, the existence of JSTOR reduces the need to build new shelf space. Libraries that do not have the hard copies are able to gain access to this substantial corpus of literature for a tiny fraction of the costs that would have been involved in building space to house it—never mind acquiring it in the first place and paying staff to catalogue it. On a system-wide basis, these potential savings in capital costs are huge—roughly $140 million at present, according to one estimate, and growing steadily.[32]

This kind of resource also offers potentially large savings in operating costs by eliminating the need to handle the paper copies of journals that can now be accessed electronically.[33] In the future, when JSTOR is linked to the electronic versions of current issues (as will surely happen), there will be further savings in cataloguing and processing costs. JSTOR also reduces the wear and tear on journals and the attendant costs of preservation and conservation.

These savings—which can exceed the fees charged to libraries

[29] William J. Baumol and William G. Bowen, *Performing Arts—The Economic Dilemma: A Study of Problems Common to Theater, Opera, Music and Dance* (New York: Twentieth Century Fund, 1966). The phrases "Baumol's disease" and "Bowen's curse" are used in the literature to refer to the phenomenon. See, for example, L. Deboer, "Is Rock 'n' Roll a Symptom of Baumol's Disease?" Journal of Cultural Economics 9 (2) (1985): 48–59; and Charles T. Clotfelter, *Buying the Best: Cost Escalation in Elite Higher Education* (Princeton, N.J.: Princeton University Press, 1996), p. 35.

[30] Navarro, pp. 125–26. The major publishers are investing heavily in the development of cybernet course content, as well as in the infrastructure that would be needed to deliver the content. As a result, it should become possible before too long for institutions to deliver electronic content that is well conceived and free of copyright problems. It is the large publishers that can achieve real economies of scale. More generally, a number of the factors that keep costs high today could turn out to be transitional. As styles of teaching and available technologies become better aligned, and as faculty become less inclined to mimic techniques carried over from an earlier day, costs are likely to fall. Many forms of teaching could become better and cheaper.

[31] Libraries pay a one-time archive capital fee, which is intended to defray part of the capital cost of creating the roughly five million pages of digitized content that reside in the archive. Participating libraries also pay an annual access fee, which helps cover the running costs. For detailed pricing information see www.jstor.org/about.

[32] The capital costs associated with housing the backfiles of the journals in JSTOR (assuming that a library has the full runs) are estimated to amount to roughly $175,000 in a typical case, and these costs will only increase over time as more content is added. There are at present over 800 participating libraries, which suggests a current system-wide saving of roughly $140 million. This figure was derived as follows. JSTOR estimates that there are 7,000 volumes in the current database. Jay Lucker, the former university librarian at MIT and a consultant to academic library construction projects, estimates that academic libraries cost on average $250 per square foot to build and that such libraries store 10 bound periodicals per square foot (personal communication with Sarah Levin). Dividing $250 per square foot by 10 volumes per square foot yields a cost per volume of $25 and multiplying by 7,000 volumes yields an overall cost of $175,000 to store the JSTOR collection in print. These numbers and this methodology are in keeping with those used in the literature in this field; see Malcolm Getz, "Storing Information in Academic Libraries," 1994, mimeo, Vanderbilt University; and Michael D. Cooper, "A Cost Comparison of Alternative Book Storage Strategies," *Library Quarterly* 59 (3) (1989): 239–60. It is important to note that in major university libraries it is not unusual to have two or three print copies of the JSTOR journals, as they are the core journals in their fields, and so the savings in these libraries could be double or triple the number stated.

[33] According to one estimate, a major library should expect to save roughly $20,000 per year and a small library something like $5,000 per year.

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by factors ranging from two to ten, depending on type of library—result directly from using information technology to centralize the storage function while simultaneously enhancing access to content. The economies of scale are extraordinary, since the core database only needs to be created once, and it is possible to grant access to additional sets of library patrons at modest incremental costs. It will of course take time for the habits of librarians and library users to change, but we are already seeing examples of how libraries can collaborate to store the hard copies of journals in inexpensive regional centers; some smaller libraries feel that they can discard the hard copies altogether, relying on larger research universities and entities like JSTOR to take responsibility for the archiving function.[34]

There is a broader point that deserves emphasis. In deciding whether a resource such as JSTOR is worth what it costs in their particular setting, institutions need to take account of *all* elements of the financial equation, including the long-term implications for building plans, capital costs, and maintenance. Not all librarians are inclined to think in such terms (sometimes making comments like "we have enough space now" or "somebody else is responsible for providing space and paying for maintenance and operating costs"); it is easy to think of JSTOR as merely another competitor for inclusion in a strained acquisitions budget. Fortunately the "access-only" benefits of JSTOR are so dramatic that many libraries have signed up on this basis alone—ignoring the long-term savings in capital and operating costs. But this is not the way decisions of this kind should be made. In a digital world, a broader institutional perspective needs to be applied to resource allocation decisions. This is a major organizational lesson taught by experience with JSTOR, and it will have even greater applicability when considering other applications of technology that are more diffuse and harder to tie to specific cost elements.

There is a third set of issues that permeates the electronic world and that can be every bit as vexing as failing to provide for rapid changes in technology or failing to analyze costs correctly. I am referring to *the handling of intellectual property rights*. Seemingly endless controversy can be associated with the ownership and licensing of rights in everything from electronic course content, to images of works of art, to software such as compression algorithms. A week does not go by without a report of some new lawsuit, and it is perilous indeed to assume that anyone can predict confidently what the courts will conclude in an arena that is fairly described as "unsettled" (to say the least).

Under particularly severe scrutiny at the moment are vendors of electronic databases containing material that appeared originally as hard copy.[35] In the world of art, it is tempting for museums and

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The New York Public Library, which is a noncirculating closed-stack library, has estimated that it spends $1.94 to retrieve and reshelve a typical journal volume. Even if we cut this estimate in half in recognition of the unusually complex nature of this particular library, and use a figure of $1.00 per retrieval, the savings are substantial. The estimates in the text use the $1.00-per-retrieval figure and are based on crude counts of the number of times hard-copy JSTOR journals were taken from the shelves at the University of Michigan and at "test-site" college libraries in the pre-JSTOR days. This is the relevant reference point, not the much higher usage now being experienced through access to JSTOR.

[34] A survey carried out in 1999 by JSTOR found that 20 percent of the respondents had already moved journals to remote storage and that an additional 24 percent have plans to do so. These numbers will continue to increase as libraries gain confidence in the archiving reliability of JSTOR. To cite one example of what libraries are doing, the librarian at Maryville College in Appalachia reports that she is completely withdrawing JSTOR back-runs up to 1980. She is moving them into the basement and will then try to sell them for a year or so. In her words, "What we cannot sell by next year will go out the door. It will be hard to see these nicely bound volumes go (after first offering them to the faculty with the caveat that they can not donate them to the library on their retirement), but we do need the shelf space and I would not even want to ask for more space. Also, students do not touch the paper once the info is online; this is just a fact of life these days"; Chris Nugent of Maryville College, in an e-mail to Kristen Garlock of JSTOR.

[35] In one noteworthy case, *Tasini v. New York Times, Inc.*, 206 F. 3d 161 (2nd Cir. 2000), six freelance writers sued the *New York Times*, Time Inc. Magazine Company, *Newsday*, the *Atlantic Monthly*, Mead Data Central Corporation, and University Microfilms International for taking articles previously published in periodicals and arranging for them to be reproduced and distributed in databases of digitized individual articles without permission and without the provision of additional compensation to the rights holders. The writers won, and, bolstered by the Tasini ruling, such suits are becoming more common. (As one colleague put it, we now live in a world of "search and sue!") As an outgrowth of the Tasini case, the National Writers Union (whose president is Jonathan Tasini, the lead plaintiff in the Tasini case) has established a Publication Rights Clearinghouse to facilitate and enforce the payment of royalties to freelance writers; see Felicity Barringer, "Online Agreement Near for Writers' Group," *New York Times*, August 3, 2000, p. C6; and http://www.nwu.org/prc/prchome.htm. In recognition of such legal challenges, *U.S. News and World Report* is reported to be pulling content from some microform editions, with disturbing consequences for libraries that thought they could rely on the availability of the content; see *Library Journal Academic News Wire*, August 29, 2000, online edition.

research libraries to seek a "safe harbor" by restricting electronic representations of their images to "thumbnails" that are of limited use to scholars. The most contentious suits of all have affected the copying and distribution of movies and popular music—which is, not surprisingly, where the economic stakes are highest.[36]

This is not a battle between good and evil. It is important, in my view, that an appropriate balance be found between the entirely legitimate interests of the owners of content and the need to find definitions of "fair use" and to craft licensing agreements that will not negate the educational benefits of electronic technologies. Experience in negotiating agreements with both journal publishers and entities such as the Dunhuang Research Institute in China convinces me that—when there is a shared set of objectives, trust, and mutual respect— it is possible to reconcile the multiple interests of participants. One lesson is the importance of confronting such questions directly and openly in the early stages of framing projects of this kind. Another lesson, of equal importance, is that terms such as "balancing" and "reconciling" are essential: ideological insistence on the preeminence of the rights of either the content owner or the user will lead nowhere.

Fourth and last on my list is the need to be concerned about the effects of market opportunities on faculty incentives.[37] If faculty can earn significant amounts of extra money by working on online projects of one kind or another, it is natural to wonder what the effects will be on the priorities they set for themselves. There is a risk that faculty, and many of the most outstanding faculty, will be distracted from their core functions of scholarship and classroom teaching. Such distractions may result from the responses of individual faculty members to the pull of the marketplace, but faculty may also be drawn away from their core pursuits with the tacit if not overt encouragement of their own universities. Issues of governance and potential conflicts of interest also arise when faculty members have personal stakes in activities affected by policies that they, along with their colleagues, are responsible for shaping. On the other hand, too pristine a posture by the university (attempting to deny faculty any opportunity to be involved in what some will see as "cutting-edge" opportunities to do new things *and* to make money) can lead faculty to seek such opportunities outside the university structure altogether.[38]

These issues may become even more vexing if electronic technologies lead to greater specialization and change the division of labor in universities. At present the functions of discovering knowledge, putting it into teachable form, distributing it to students, and then certifying their grasp of the material are usually tied together. Generally speaking there is one "price" for the bundle, with the price paid either by the student who pays tuition or by whatever private or public funders finance the university that is the home of this set of activities. But applications of electronic technologies may lead to an "unbundling" of these functions. Technically sophisticated intermediaries may take over responsibility for translating content created by traditional academics into electronic "courseware," which may then be distributed by still other intermediaries to a wide array of learners. Under this scenario, will separate charges be imposed at each step along the "knowledge chain"? How will faculty incentives be affected, and who will pay for the scholarship that started the process?

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[36] For example, the Recording Industry Association of America sued Napster over the distribution of copyrighted music. On July 26, 2000, Judge Marilyn Hall Patel of the United States District Court for the Northern District of California issued a preliminary injunction against Napster and ordered the online music provider to stop the trade of copyrighted music; *A&M Records, Inc. v. Napster, Inc.*, Nos. C 99-5183 MHP and C 00-0074 MHP (N.D. Cal. July 26, 2000). Citing "substantial questions of first impression," on July 28, 2000, a panel of appellate judges granted an emergency stay of the District Court's injunction, thereby permitting Napster to continue operating pending a decision in the appeal of the preliminary injunction. Oral argument on the appeal was held on October 2, 2000, and an opinion is expected to be issued soon.

[37] Concern over the effects of outside funding of all kinds on university priorities is long-standing; see Eyal Press and Jennifer Washburn, "The Kept University," *Atlantic Monthly* 285 (3): 39–54.

[38] Faculty may be tempted to protect their "ownership rights" by separating such work as completely as they can from their normal lives as professors. For a lengthy discussion of these issues see Scott Carlson, "When Professors Create Software, Do They Own It, or Do Their Colleagues?" *Chronicle of Higher Education*, July 21, 2000, online edition.

How "Businesslike" Should Universities Be?

A recurring theme of this talk is the need to seek a sensible "middle ground," an injunction that applies not only to specific issues such as how to balance competing ownership interests and how to structure faculty incentives but also more broadly when we ask the larger question, "How 'businesslike' should universities be?" Underlying the concerns expressed by many (including the use of marketplace language such as "brands," which has worrying symbolic overtones for some faculty[39]) is the fundamental risk of "mission drift." As economist Burton Weisbrod puts it, "When nonprofits' pursuit of revenue drives them to act like private firms, …there are dangers of goal displacement, as the social mission slips from sight…. Aggressive marketing and merchandising produce almost inevitable conflict, sometimes forcing organizations to choose between 'capitalist appetites' and…integrity."[40] While the not-for-profit entity must certainly pay attention to its own "bottom line" and operate efficiently, it has to keep its own mission firmly in mind. One highly experienced leader of both for-profit and not-for-profit entities, John C. Whitehead, offers this useful distinction: "A for-profit board has an obligation to *get out* of a bad business while a non-profit board may have an obligation to *stay in*, if it is to be true to its mission."[41]

A for-profit orientation can take a university in directions quite different from those that it would follow otherwise. A good example is the handling of student aid. A for-profit or "proprietary" educational institution will presumably offer financial aid (or "discounts" from its stated fees) if and only if such discounts end up improving the financial health of the organization by increasing marginal revenues more than marginal costs. A not-for-profit university, on the other hand, may see its mission as,including an obligation to spend money on financial aid to attract the best students, whatever their means, or to increase diversity, even though such spending will be a drain on its resources.[42]

JSTOR offers a useful case history of the importance of adhering to a not-for-profit mindset. When JSTOR was first established, it was evident that there was more money to be made in providing electronic access to the current issues of journals than to the backfiles. JSTOR targeted the digitization of the backfiles nonetheless because of the perceived importance to scholars, and to the library community, of both enhancing access to this "less commercial" part of journal literature and saving shelf space. Since it was contrarian (from a commercial perspective), this emphasis on the backfiles surprised many people. Early on, the head of one widely known commercial entity told me: "Mr. Bowen, no sane man would do what you propose." He may even have been right—from his perspective. Which is precisely the point.

Subsequent decisions have also been different from those that would have been taken had JSTOR "gone public" and followed the for-profit path advocated by some. Let me cite two examples. In deciding which fields of knowledge to include in the database, JSTOR has attempted to determine where the needs of scholars are the greatest, not where there is the best chance of selling a product. Thus the JSTOR database includes fields like history, philosophy, and literature, whereas it does not yet include business. Then, in setting fees, a determined effort was made to encourage the participation of smaller and less wealthy institutions all over the world. The assistance of foundations has been instrumental in giving effect to these decisions, which have been motivated by objectives and values analogous to those that lead institutions to provide need-based financial aid.

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[39] In the debate over the creation of a for-profit subsidiary at Cornell, Risa L. Lieberwitz, an associate professor in the School of Labor and Industrial Relations, was quoted as saying: "If we are starting to talk about Cornell as a brand name, then we are in trouble. I don't see what I do as a professor as promoting a brand name. We are talking about brands without the slightest bit of self-consciousness, and that is just jarring to me"; Sarah Carr, "Faculty Members Are Wary of Distance-Education Ventures," *Chronicle of Higher Education*, June 9, 2000, p. A41. Similarly, in announcing the sale of Africana.com, Professor Gates was quoted as saying "We didn't want a lot of cheap ads that would dilute *the brand* [my emphasis]"; Kirkpatrick, p. C2.

[40] Burton Weisbrod, ed., *To Profit or Not to Profit: Commercialization in the Non-Profit Sector* (Cambridge: Cambridge University Press, 1998), p. 304.

[41] Quoted in William G. Bowen, *Inside the Boardroom* (New York: Wiley, 1994), p. 23.

[42] In the for-profit educational world, discounting can be seen as a form of price discrimination, whereas student aid is an "investment" for educational institutions that could have recruited well-qualified students without such outlays; see David J. Breneman and William G. Bowen, "Student Aid: Price Discount or Educational Investment?" *Brookings Review* 11 (1) (Winter 1993): 28–31; and William G. Bowen, "The Student Aid/Tuition Nexus," in *Ever the Teacher* (Princeton, N.J.: Princeton University Press, 1988), pp. 538–43. The second reference shows how failure to distinguish for-profit from not-for-profit motivations can lead to entirely wrong conclusions about public policy—in this case the effect of changes in federal financial aid programs on tuition.

To be clear, I am certainly not arguing that for-profit providers of one service or another are "bad"; JSTOR itself employs for-profit providers (such as vendors of scanning services) when they can provide the best value for money *in helping JSTOR achieve its purposes*. What is crucial is the objective being served and the mission of the enterprise setting the objective. This is no trivial point. In working with the providers of other forms of digitized content (in, for example, the art world), we have had to explain that it is important to retain the freedom to work with whatever agent—be it a for-profit or not-for-profit entity—can best distribute the archive in ways that are consistent with educational and cultural values.

It is also true that not-for-profit entities can sometimes act like their for-profit cousins. For example, we have encountered scholarly journals and occasionally learned societies that were interested primarily in shaping digitization projects to yield the maximum revenue for their organizations. This is understandable, since such entities are often hard-pressed to cover their own running costs and are always in search of new sources of funds. In this regard, they have something in common with universities! But there are larger interests to be served, and in shaping the digitized, commercialized world that is evolving, it is important to encourage not-for-profit entities, including universities and university presses, to take as all-encompassing a perspective as possible. A major role for foundations, in my view, is to promote broader orientations. Appropriately targeted subsidies can do a great deal to align interests. More generally, the revolution in information technology creates many new opportunities for productive collaborations, some of which will be missed if there is an excess of competitive zeal that is market-driven.

The Search for Balance: The Need to Remain "At a Slight Angle to the Universe"

There are no pat answers to the many questions I have raised in this lecture. The longer-term implications for universities of the paired forces of digitization and commercialization are poorly understood. This should not surprise us. Many of these developments are genuinely new; there is a dizzying array of "moving parts" (and fast-moving parts at that); and, finally, the intellectual framework and the empirical reference points needed to analyze many of the issues are underdeveloped, if they exist at all. In such circumstances, there is a natural temptation to "wing it"—to "do something" so as not to appear slow of foot—even though the likely consequences of the "something" are far from clear. But there are risks associated with just plunging ahead, especially since what we often like to call "experiments" are inordinately hard to reverse in academic settings. Having learned some lessons the hard way, I am a strong advocate of carrying out the same kind of systematic research in this area that we embrace so naturally in more traditional fields.

There is also a temporal perspective that must be honored. Universities are among our oldest institutions, and it would be most unfortunate if the time horizons common to so much of commercial society came to dominate academic planning. Stock prices fluctuate wildly if companies miss quarterly earnings estimates by pennies. New ideas, on the other hand, germinate over long periods and almost always take longer to correct than they did to create.

Above all I hope we will remember that universities exist to serve purposes that transcend many of the concerns of the workaday world. The disinterested pursuit of learning, commitments to tolerance and social justice, the belief that learning is enhanced by studying with those who have different perspectives and come from different walks of life—these and other core elements of university life defy the logic of the marketplace and the auction block. To some people universities now seem more "for sale" than they have ever been. I hope this is not the case, since I am convinced that their value (including their value to those who would "buy" them) derives in large measure from the fact that they are *not* for sale.

Although universities can lose their way by yielding to some combination of complacency and temptation, they can also be pressured by external forces into adopting priorities that are too narrow or overly restrictive. There is a real danger that funders in both the United States and the United Kingdom (especially governmental entities) will expect universities to be so responsive to the market that larger and longer-term objectives will be sacrificed. The society at large needs to give universities the time, the "space," and the resources that they need to work through new and complex issues in thoughtful and principled ways. I return now, as I conclude, to Forster's famous description of Cavafy:

> They turn and see a Greek gentleman in a straw hat, standing absolutely motionless at a slight angle to the universe.... He may be prevailed upon to begin a sentence—an immense complicated yet shapely sentence, full of parentheses that never get mixed and of reservations that really do reserve; a sentence that moves with logic to its foreseen end, yet to an end that is always more vivid and thrilling than one foresaw.... It deals with the tricky behavior of Emperor Alexius Comnenus in 1096, or with olives, their possibilities and price...or the dialects of the interior of Asia Minor.... And despite its intellectual richness and human outlook, despite the matured charity of its judgments, one feels that it too stands at a slight angle to the universe; it is the sentence of a poet.[43]

Faced with both new opportunities and new temptations, universities will need an effective combination of internal clarity concerning what matters most and the right kind of external support if they are to retain the perspective of the poet; if they are to continue to stand, with Cavafy, "at a slight angle to the universe."

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[43] Here is a fuller excerpt from E. M. Forster's description of Cavafy: "They turn and see a Greek gentleman in a straw hat, standing absolutely motionless at a slight angle to the universe.... Yes, it is Mr. Cavafy, and he is going either from his flat to his office, or from his office to the flat. If the former, he vanishes when seen, with a slight gesture of despair. If the latter, he may be prevailed upon to begin a sentence—an immense complicated yet shapely sentence, full of parentheses that never get mixed and of reservations that really do reserve; a sentence that moves with logic to its foreseen end, yet to an end that is always more vivid and thrilling than one foresaw. Sometimes the sentence is finished in the street, sometimes the traffic murders it, sometimes it lasts into the flat. It deals with the tricky behavior of Emperor Alexius Comnenus in 1096, or with olives, their possibilities and price...or the dialects of the interior of Asia Minor. It is delivered with equal ease in Greek, English, or French. And despite its intellectual richness and human outlook, despite the matured charity of its judgments, one feels that it too stands at a slight angle to the universe; it is the sentence of a poet"; E. M. Forster, "The Poetry of C. P. Cavafy," in *Pharos and Pharillon* (New York: Alfred A. Knopf, 1961), pp. 91–92. I am indebted to my colleague and friend Edmund M. Keeley for this reference.

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June 2001

SPECIAL ISSUE: AT A SLIGHT ANGLE TO THE UNIVERSE

THE UNIVERSITY IN A DIGITIZED, COMMERCIALIZED AGE

William G. Bowen is an economist, a former president of Princeton University, and now president of The Andrew W. Mellon Foundation. This special issue of *ARL: A Bimonthly Report* contains the remarks that he delivered last fall as the Romanes lecturer at Oxford University. The theme Dr. Bowen chose to highlight on this prestigious occasion is of core significance to research libraries and all other stakeholders engaged in the system of scholarly communication: the university in a digitized, commercialized age.

Like so many contemporary issues, one of the trickiest parts of engaging the opportunities and challenges presented by digitization is determining how best to frame the issues in order to shape a constructive community dialog. ARL is publishing Dr. Bowen's lecture to present his framework for considering the *opportunities* and *warning flags* that research libraries and their institutions should anticipate as they define what role commercialization will play within the digital future they are creating. ARL encourages broad discussion of these issues in the North American research library community.

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METADATA HARVESTING AND THE OPEN ARCHIVES INITIATIVE

by Clifford A. Lynch, Executive Director, Coalition for Networked Information

Introduction

This article describes the Open Archives Metadata Harvesting Protocol, an important new infrastructure component for supporting distributed networked information services. The Metadata Harvesting Protocol—a mechanism that enables data providers to expose their metadata—is seeing very rapid deployment, and enables a fascinating array of new services and system architectures for a diverse set of communities. I will speculate about some of these services and discuss issues involved in their development. This article is not intended to be a definitive technical summary of the protocol; documents providing such a discussion can be found at <http://www.openarchives.org/>. Rather, the focus here is on the uses of the protocol and its strategic significance as an enabling technology.

There has been considerable confusion about the Open Archives Metadata Harvesting Protocol, mostly beginning with and stemming from its name. The protocol no longer has much to do with archiving or archives, other than in terms of its heritage. There is a broad movement now well established within the scholarly publishing world, championed by people like Stevan Harnad at the University of Southampton and Paul Ginsparg of Los Alamos National Labs[1], to enhance public access to scholarly journal articles through the use of "e-print" servers. (These servers are sometimes referred to as "repositories" or as "archives"—for example, the Los Alamos Preprint Archive—although they are not necessarily archives in the technical sense that the digital preservation community speaks of repositories and archives.) The fundamental idea here is that authors would deposit preprints and/or copies of published versions of their articles into such servers, thus providing readers worldwide with a free way of obtaining access to these papers, without needing paid subscription access to the source electronic journals. The proponents of this movement argue that the refereed scholarly journal literature really belongs to the scholarly community and by extension to the world at large, and that such free access is better aligned with the interests of both authors and readers. The deposit of preprints would also speed up and democratize the frontiers of research and access to new knowledge; instead of a privileged circle of members of "invisible colleges" sharing preprints, these preprints would be available to everyone immediately, without the delays introduced by the journal refereeing and publication cycle. Proposals such as PubMed Central and the Public Library of Science build upon these ideas.[2] This movement is sometimes called "open archives" and addresses structural change in the system of scholarly communication.

The Open Archives Metadata Harvesting Protocol grew out of an effort (described in the next section) to solve some of the problems that were emerging as e-print servers became more widely deployed; it originated in the community concerned with advancing the development of e-print archives. However, as work on the protocol advanced it became clear that it provided a very general-purpose mechanism that could address a surprisingly wide range of urgent needs and, in order to be useful in the widest variety of contexts, this mechanism had to be defined so that it was agnostic to assumptions about types of content, economic models, intellectual property constraints, or systems of information flow. For better or worse, by that time the protocol was widely known as the Open Archives Protocol, and the program to develop it was widely known as the Open Archives Initiative, so the decision was made to maintain the popularly known terminology.

The protocol is now often referred to as the Open Archives Metadata Harvesting Protocol in an attempt to reintroduce a bit more clarity. This Metadata Harvesting Protocol (MHP), as I will describe in more detail below, is simply an interface that a networked server (not necessarily an e-print server) can employ to make metadata describing objects housed at that server available to external applications that wish to collect this metadata. A server does not need to be part of an e-print program to use the protocol; indeed, it does not need to house journal papers at all. The server does *not* need to offer free access to the digital objects that it stores. The Metadata Harvesting Protocol can be implemented by servers housing commercial products available by subscription (like scientific journals) or available for transactional purchase, by libraries or museums offering access to digitized images, or by scientific data archives, to list only a few potential applications.

> *The heart of their work was the definition of an interface to permit an e-print server to expose metadata for the papers that it held; this metadata could then be picked up by federated search services or by other repositories that wanted to identify papers for copying.*

Many of the people who have been involved in the work on the MHP are also strong proponents of the broader program to open free public access to the scholarly journal literature, but they are usually careful to differentiate between the two; the MHP can certainly advance the deployment of e-print archives, but it is not limited to supporting that program. It is a much more general and more neutral technical-enabling mechanism. The term "Open Archives Initiative" is ambiguous; it refers both to a specific, organized, funded effort to advance the Metadata Harvesting Protocol, and to a separate, diffuse movement to promote the deployment and use of e-print archives involving a lot of the same people.

A Brief History of the Open Archives Metadata Harvesting Initiative

The Open Archives Metadata Harvesting Initiative had its roots in work done by Herbert Van de Somple (then of the University of Ghent) working in collaboration with groups that included researchers and librarians at Los Alamos National Labs in the United States. In late 1999, a meeting was convened in Santa Fe, New Mexico, to address a series of problems that he had been exploring in the e-print server world. Fundamentally, the problem was that as disciplinary e-print servers proliferated, often with overlapping disciplinary coverage and geographical affinity, there was a need to develop services that permitted searching across papers housed at multiple repositories. Repositories also needed capabilities to automatically identify and copy papers that had been deposited in other repositories. Further complicating matters, institutional e-print archives (such as the DSpace project being carried out at MIT in collaboration with Hewlett-Packard[3]) were beginning to emerge that would house the intellectual output of specific campus communities; it was undesirable to require scholars to deposit their work in multiple repositories, and hence it would be necessary for disciplinary archives to be able to identify and replicate material from these institutional archives and for federated search services to be able to search across both institutional and disciplinary archives.

The participants at the Santa Fe meeting explored many aspects of the issues involved in addressing these problems, including how to identify e-print archives of interest and how to codify acceptable use policies for material found in such archives. But the heart of their work was the definition of an interface to permit an e-print server to expose metadata for the papers that it held; this metadata could then be picked up by federated search services or by other repositories that wanted to identify papers for copying. The results of this effort were documented in the Santa Fe Convention,[4] the precursor of the MHP. I will not go into the technical details of that work here, since changes were made as the Santa Fe Convention evolved into the Open Archives Metadata Harvesting Protocol, and these details are of primarily historical interest today.

The participants at Santa Fe made a key architectural decision that is worth highlighting here, however, because it has become a foundational principle for all subsequent work: they adopted a model that rejected distributed search (as might be done with the Z39.50 information retrieval protocol, for example) in favor of simply having servers provide metadata in bulk for harvesting services, subject only to some very simple scoping criteria, such as providing all metadata added or changed since a specified date, or all metadata pertaining to papers meeting matching gross subject partitions within an archive (such as physics, as opposed to mathematics).

This decision has generated some controversy, and has sometimes been misunderstood. Z39.50 is a mature, sophisticated, but unfortunately very complex protocol that allows a client to search a remote information server across a network. It can be used as a tool to build federated search systems; in such a system, a client sends a search in parallel to a number of information servers that comprise the federation, and then gathers the results, eliminates or clusters duplicates, sorts the resulting records and presents them to the user. It has proven very difficult to create high-quality federated search services across large numbers of autonomous information servers through Z39.50 for several reasons. Retrieval accuracy is a problem: different servers interpret Z39.50 queries differently, in part due to lack of specificity in the standard, leading to semantic inconsistencies as a search is processed at different servers. Also, there are scaling problems in the management of searches that are run at large numbers of servers; one has to worry about servers that are unavailable (and with enough servers, at least one always *will* be unavailable), and performance tends to be constrained by the performance of the slowest individual server participating in the federation of servers. And the user has to wait for a lot of record transfer and post-processing before seeing a result, making Z39.50-based federated search performance sensitive to participating server response time, result size, and network bandwidth.

They adopted a model that rejected distributed search (as might be done with the Z39.50 information retrieval protocol, for example) in favor of simply having servers provide metadata in bulk for harvesting services.

For other metadata retrieval purposes that were also of interest to the Santa Fe group, such as guiding server replication, Z39.50 is an elegant and flexible way of retrieving metadata. But, unfortunately, it is far from trivial to implement either in clients or servers, although the availability of program libraries for the Z39.50 protocol has made this less of a problem than it once was.

The Santa Fe group wanted a very simple, low-barrier-to-entry interface, and to shift implementation complexity and operational processing load away from the repositories and to the developers of federated search services, repository redistribution services, and the like. They also wanted to minimize the interdependency between the quality of applications services as viewed by the user and the behavior of repositories that supplied data to the applications services. Thus, instead of using a distributed search model based on something like Z39.50, they chose to use an architecture that had been used in early networked information resource location systems like Archie (developed by Peter Deutsch and Alan Emtage in the early 1990s) and perhaps most elegantly articulated in the Harvest system developed by Mike Schwartz, Peter Danzig, Mic Bowman, and colleagues at the University of Colorado, Boulder in the mid-1990s (this is the system that gave us the verb "harvesting" for metadata). To a great extent, this is also the same architecture that had been validated by a long history of successful experience within the library community in building and operating very large-scale (centralized) union catalog databases. The Santa Fe participants recognized that every repository housed metadata, and so they devised a very simple way for repositories to export this metadata on demand; service developers would then take the responsibility for actually collecting, or "harvesting," this metadata, and for processing (such as duplicate elimination or clustering) and normalizing this metadata to support functions such as federated searches. A user querying a federated search service would not interact with the repositories, but only with a database that the federated search service had already constructed from metadata harvested from participating repositories, for example. Hence the performance of the federated search service was largely independent of the performance or reliability of the participating repositories. The design goal was that a repository should be able to implement the Santa Fe Convention with a few days of programmer time, as opposed to months.

To clarify fully the relationship between Z39.50 and the Santa Fe Convention, let me make a few observations (which are equally applicable to the MHP discussed later). These two protocols are really meant for different purposes, with very different design parameters, although they can both be used as building blocks in the construction of similar services, such as federated searching. Neither is a substitute for the other. They make very different choices about the allocation of both developmental and operational complexity, cost, and effort among the components that participate in the delivery of a service, such as federated search, and about the characteristics of the resulting service (such as how quickly database updates are visible to the user of federated search). And we should not think about the world becoming partitioned between Z39.50-based resources and MHP-speaking resources, but rather about bridges and gateways. It is quite reasonable to think about a *service* that is constructed using the Santa Fe Convention/Open Archives Metadata Harvesting Protocol offering a Z39.50 interface to its user community, if such an interface is useful to that community. A Z39.50-speaking server can fairly easily be made MHP-compliant, and I would expect to see the development of gateway or broker services that make Z39.50 servers available for open archives metadata harvesting in cases where the individual server operators do not want to undertake this development work; this is not a major technical problem, assuming that there is common understanding about the metadata schemes to be supported.

Following the late-1999 Santa Fe meeting, there were several workshops held during 2000 at venues such as the ACM Digital Libraries meeting to share the thinking of the Santa Fe meeting with the broader networked information community. Out of these workshops a very surprising consensus emerged. Many other groups had very similar problems to those faced by the e-print community, including libraries, museums, commercial journal publishers, and communities of scholars who needed to share distributed data resources. The metadata that each community wanted to make available had unique features, but the fundamental mechanism of making metadata available for harvest subject to some very simple selection criteria seemed to be widely needed. Based on this recognition of common needs, the Coalition for Networked Information and the Digital Library Federation provided funding to establish an Open Archives Initiative (OAI) secretariat at Cornell University, managed by Herbert Van de Somple (by then a visiting professor there) and Carl Lagoze (a research professor at Cornell widely known for his work in the development of advanced networked information access systems). An international steering committee was put in place to guide the effort, and a program was launched to generalize the Santa Fe Convention to support harvesting of all kinds of metadata, as well as to explore other infrastructure issues related to metadata harvesting (such as registries of sites available for harvesting, and interesting services that could be built given the availability of metadata to be harvested). The OAI convened a technical meeting at Cornell in September 2000 to rework the Santa Fe Convention and subsequently refined these specifications via e-mail review.

Multiple metadata schemes are supported in the Open Archives Metadata Harvesting Protocol—this is really the key architectural change from the Santa Fe Convention.

The revised specifications were made public in January 2001, with two day-long workshops (one in Washington, D.C., in January, and the other in Berlin in February) to introduce them to potential implementers. The intention is that, with the exception of clarifications or correction of gross errors, these specifications will remain stable for at least a year while the community gains experience in using them. (In fact, there has already been one revision as of July 2001, because the protocol depends on a suite of XML-related standards and the Worldwide Web Consortium, which manages these standards, has made changes to them which necessitated corresponding changes in the MHP.) We will convene a meeting of technical experts again in very late 2001 or early 2002 to consider what revisions or extensions need to be made to the MHP specifications based on this year of experience. Following this process, we may submit the protocol to a formal standardization process through an organization like the National Information Standards Organization (NISO) or the Internet Engineering Task Force (IETF); at present it has no status as a formal standard endorsed by a formal standards body.

Meanwhile, implementation is moving ahead. A number of repositories already support harvesting according to the protocol (a list of these is available at the Open Archives website), and various services based on harvested metadata are under development. The Andrew W. Mellon Foundation has recently funded a number of proposals to help underwrite the development of experimental services that are built on metadata harvesting [see related article on p. 10].

The Metadata Harvesting Interface

Without going into technical detail that isn't relevant here, the Metadata Harvesting Protocol uses a very simple HTTP-based request-response transaction framework for communication between a harvester and a repository. A harvester can ask for metadata to be returned with optional restrictions based on when the metadata has been added or modified (in other words, it can obtain new or changed metadata since its last harvest interaction with a repository); it can also restrict metadata by server-defined "partitions" (think of these as gross subject-oriented subcollections housed on a server). The server returns a series of sets of metadata elements (in XML) plus identifiers (i.e., URLs) for the objects that the metadata describes.

Supporting this core harvesting transaction are a few ancillary transactions: for example, to permit a harvester to obtain a list of the names of partitions that a server has defined and which can thus be used as restriction criteria in harvesting requests.

Multiple metadata schemes are supported in the Open Archives Metadata Harvesting Protocol—this is really the key architectural change from the Santa Fe Convention. The protocol requires that all servers offer unqualified Dublin Core metadata (encoded in XML) as a lowest common denominator; however, each server is also free to offer metadata in one or more other schemes, and a harvester can request that metadata be provided in a scheme other than Dublin Core as part of the harvest request. There is also another auxiliary transaction that permits a harvester to obtain a list of the names of the metadata schemes that a given repository supports. The underlying idea here is that we will see communities of practice evolve that define metadata schemes that are richer and more precise than unqualified Dublin Core; for example, the e-print archives community is already working on one that encodes various important data elements for e-prints, such as author affiliations, bibliographic information if the paper has been published in a journal, and even the paper's cited references in a structured form. These community-specific schemes could be handled as qualified Dublin Core, or as *de novo* schemes; the only requirement is that they be transportable in XML. This is a very powerful method of enabling communities with common metadata to work together while still ensuring some minimal level of interoperability for very broad federated search or other services based on unqualified Dublin Core. It seems very likely that the MHP will drive development of community-specific metadata schemes. It will also be helpful in clarifying our understanding of the value of unqualified Dublin Core for lowest common denominator cross-domain resource discovery.

Functionally, this is a reasonably complete description of the open archives metadata harvesting interface; I have ignored a number of technical details here, such as how requests for very large amounts of metadata are segmented across multiple harvest transactions. You can find these details in the technical specifications at the Open Archives website. But to really understand open archives metadata harvesting at a functional level, it is equally important to emphasize what is *not* within the scope of this interface.

Authentication and access management are not covered. A given repository can use a range of access-management mechanisms that are external to the protocol to decide which harvesters it will provide with metadata if it wishes to impose access control. Independent of access control decisions about providing *metadata*, the server only includes a pointer—such as a URL or URN—to each object described by metadata that it makes available for harvest; access controls on this base object may or may not exist. In addition, any authentication that the harvester wants to conduct on the repository is handled by external mechanisms.

The protocol does not address the very real issue of how harvesters will identify repositories that they wish to harvest, nor does it provide information to help determine when harvesting should occur, or how frequently. Questions about acceptable use of harvested metadata are not addressed by the protocol; these might be agreed upon explicitly as part of establishing a harvesting relationship with a server that is access-controlled, or they might be simply advertised as terms and conditions that any harvester automatically agrees to in the case of a publicly-accessible server, but in any case this is outside the scope of the harvesting protocol.

There will clearly be a need for some kind of registry of names for well-known community-specific metadata schemes. The MHP does not address this, though it clearly must be part of the broader infrastructure associated with the protocol. Along with the community-specific schemes, we will want agreements about how these schemes are downgraded to unqualified Dublin Core; documentation of these mappings is not part of the protocol but again may be part of the broader infrastructure.

Applications Enabled by the Metadata Harvesting Protocol

The most obvious applications that are enabled by the Metadata Harvesting Protocol are those that helped to motivate the work at the initial Santa Fe meeting: repository synchronization and federated search. For repository synchronization, one compares metadata from two or more repositories and decides what objects should be copied from one repository to another (along with the necessary metadata). The hard part here is in the application: deciding what repositories to examine, and determining the criteria for identifying what to copy. There is also a problem with the propagation of metadata from one repository to another; it's not clear (other than by using community standards) how to determine the most comprehensive metadata set describing an object so that all of the relevant metadata can be copied over.

Similarly, federated search using MHP is not hard in principle; one collects metadata from a number of sites, normalizes it, clusters it in some fashion to deal with duplicates as appropriate, and offers search services against the resulting database. In practice, all of the details are complex: what sites to harvest, how often to harvest them, how to normalize metadata (especially if one wants to do better than the lowest common denominator—unqualified Dublin Core—offered by each site), how to handle duplicate objects—these are all key design issues that need to be addressed. MHP provides a very powerful framework for building union-catalog-type databases (in the broad sense; not just union bibliographic catalogs, but all sorts of union descriptive databases) for collections of resources by automating and standardizing the collection of contributions from the participating sites, which has traditionally been an operational headache in building and managing union catalogs. But there are many complex specifics that need to be coded into any actual implementation.

A set of applications closely related to federated search deal with the potential enhancement of web search engines in at least two distinct dimensions. One is providing a more efficient way for web search engines to crawl static HTML pages, and also to obtain metadata associated with these pages (there are other methods of getting the metadata, such as in-line META tags, but the MHP provides a much more flexible way of doing this). The second is being able to integrate various parts of what is sometimes called the "deep web" or the "invisible web" with the indexing of static web pages, including repositories of digital objects and databases that do not exist as retrievable and indexable static web pages, and also proprietary content, where the content owner may be willing to make metadata about the content available to facilitate finding it, but may be unwilling to permit arbitrary web-indexing programs to have direct access to the content in order to index it. The Metadata Harvesting Protocol allows a server to enumerate the objects it houses and to provide metadata associated with these objects, no matter what the nature of these objects and the access constraints that might apply to them.

Note that any application dealing with metadata created and stored on distributed sites faces issues about whether it can trust the metadata it is relying upon.[5] This means, for example, that it is unlikely that the public web search engines will use an OAI interface to harvest arbitrary sites anytime soon; however, federated searching or customized indexing of sites that are selected in some fashion—by being part of an organizational intranet (think of institutional portal sites in this context), or through some type of editorial policy that selects quality sites as part of a subject portal, for example—will likely make wide use of the protocol.

These are the most obvious applications (and the ones that will probably be available soonest), in that they directly extend or enhance existing practices. Interesting and novel applications are likely to emerge as well. For example, one can easily imagine the rise of intermediary services (reminiscent of the brokerage services in the original Harvest system) that collect raw metadata from sets of sites, consolidate and enhance it, and then redistribute it as a single feed or as custom-selected subsets to still other sites for reuse. Creative applications designers are at the very early stages of exploring the services that the MHP can enable, and I think we can expect some fascinating and unexpected developments in the next few years.

Open Questions and Future Directions for Open Archives Metadata Harvesting

While the Open Archives Metadata Harvesting Protocol solves one very important set of problems, it also focuses attention on a number of other issues that will have to be addressed as applications proliferate. Some of them will require progress in standards and/or other networked information infrastructure components; others are simply not well understood at this point and will require considerable research and experimentation to allow the development of a body of design knowledge and community practice. In this final section I will briefly sketch some of these issues.

Acceptable Use and Intellectual Property Issues for Metadata

Many sites make metadata about their holdings publicly available today in the sense that they offer publicly accessible search services operating against that metadata, which can then result in the display of individual records (possibly in a fully tagged format suitable for reuse by another computer application, or possibly not). This is the case with most library catalogs; for example, they offer searching to anyone who wants to search the database, and some systems will even provide formatted displays of individual, full MARC records that are retrieved by such searches as an option. There is a great difference between this practice and simply making the entire catalog's contents, or major subsets, available for bulk downloading and re-incorporation into other databases and services. In a world of MHP-enabled network resources, metadata becomes migratory and recombinant.

Owners and operators of large databases and repositories will need to think through how comfortable they are in making their metadata generally available on this basis, and what limits, if any, they want to place on permissible reuse. In addition, this may focus new attention on metadata ownership; while nobody may much care about who reuses the odd individual bibliographic database record, copying an entire bibliographic database may be viewed quite differently. Finally, there is no real way to encode acceptable-use policies or restrictions on metadata harvesting within the MHP (though the earlier Santa Fe Convention did try to address this to some extent); while it would not be difficult to make reference to textual statements about such policies, encoding them (or even a modest range of common policies) in a machine-understandable way is a difficult problem that calls for collaboration between computer scientists, lawyers, and standards developers, among others. This is not an area where we have seen great progress to date. And infrastructure to permit sites to limit harvesting to a specific set of "partners" (perhaps those who have agreed to license agreements constraining the reuse and redistribution of the metadata that they will harvest) is still lacking; this is part of the general and very complex authentication and access management problem. Certainly there are readily available ad-hoc solutions for authenticating harvesters today, but they may not be as secure, as scalable, or as interoperable as one might wish.

Where to Harvest: Selection, Registries, and Trust Questions

Many applications will use manually-curated lists of sites to harvest, and, indeed, the editorial processes and selectivity that go into the development and maintenance of these lists will be part of the value of the application itself. As these services multiply, operators of new repositories will face the problem of bringing their site to the attention of the appropriate service operators so that their metadata can be harvested.

Federated searching or customized indexing of sites that are selected in some fashion—by being part of an organizational intranet (think of institutional portal sites in this context), or through some type of editorial policy that selects quality sites as part of a subject portal, for example—will likely make wide use of the protocol.

If we look at the operation of the public web search engines, which seek to be comprehensive, we find much more complex methods of identifying sites to crawl (the details of which vary from search engine to search engine, and are viewed as representing proprietary advantage to these search engines). They start with a base of websites that they have identified, or that site operators have submitted to the indexing services, but then they also dynamically discover new sites to index by analyzing links on sites that they visit. They also use a variety of techniques (both manual and automated) to determine how often to revisit sites looking for new material to index.

Some applications performing metadata harvesting will want to do a similar dynamic discovery of sites that are available to be harvested. This could be done in a number of ways. Certainly, for systems that harvest static HTML pages, it would be possible to program their crawlers to also attempt to do an OAI query against each site to see if it offered metadata for harvesting (though there would be a lot of overhead in this, since, presumably, for the foreseeable future only a very small percentage of sites would offer such metadata). It would be possible to establish a central registry of sites that offered metadata via the OAI secretariat; setting up a database that allowed sites to register themselves and interested parties to search the registry to identify harvestable sites is technically straightforward and not terribly resource intensive.

A prototype of this exists today on the Open Archives website; this is simply a list of MHP-compliant sites that have submitted their addresses to the OAI secretariat. The secretariat does some essentially mechanical validation of the sites by running a program periodically that issues OAI queries; it checks that the site is still there and provides syntactically well-formed responses to these queries. This mechanical validation is very valuable in these early days of experimental implementations, though I think there are questions about how practical it will be to extend it to truly enormous numbers of sites.

But it is important to recognize the very limited value of such a registry. It does not address how one might classify sites (for example, by the nature of their content or their subject coverage) in order for applications to decide which sites should be harvested. Developing computer-based methods of doing this, at any level of generality, is a complex proposition (though there is always the expedient of having applications check out all newly registered sites a few times, and only continuing to harvest the ones that prove to have interesting material; this, of course, does not scale well.) Worse, it is not only complex, it is subjective and prone to debate. Someone, either the site operator or a third-party "cataloger" would need to describe each site, and the value of the registry would be closely tied to the quality and accuracy of this description. Finally, since we know so little about the spectrum of applications that are likely to emerge, any thinking about appropriate descriptive schemes for such a registry is almost pure speculation at this point in time. For all of these reasons, the OAI metadata harvesting initiative has decided that it is premature to do more than the simple prototype registry already described. But registries will clearly become an issue over time.

There is another dimension of the registry problem that is even more important and difficult. This has to do with rating the quality and accuracy of the metadata that the various sites offer for harvesting, which can range from impeccable to shoddy to actively deceptive (keep in mind that in some sense metadata is an unsubstantiated assertion about content that the site stores; the site may offer this content for inspection and use only under highly constrained conditions such as license). Many applications will likely be structured around the principle of offering in-depth access to high-quality information resources, which means that they will have to be concerned with the assessments of the quality of the metadata offered by the sites they choose to harvest. It's difficult to see how this can be handled at this point other than by evaluation and/or trust decisions by the individual applications. Scaling these decisions past manual editorial management of lists of sites to harvest takes us quickly to research areas such as reputation management systems, further complicated by the fact that both the harvesting services *and their end users* may want to be able to make choices about trust and reputation in their use of metadata.

> *Any organization offering access to a sophisticated networked information resource may find the MHP is a new way to make content available to a variety of innovative service providers.*

Granularity

In developing MHP interfaces to databases or repositories, a key design decision has to do with the granularity of the objects for which the site exposes metadata. For the original e-print-archive applications this was straightforward; the objects of interest were individual article e-prints and thus they made available metadata for each article e-print. But as metadata harvesting is deployed in a wider range of contexts, the answers are less clear. For many repositories we have little or no metadata at the individual object level, and instead have various forms of collection-level description (such as the Electronic Archival Description, or EAD, files); in other cases we may have both collection- and item-level records, each of which has value in its own right, but it is not clear how to link the two and it also isn't always clear that it is useful to make huge numbers of item-level records available. In the extreme case, we have large databases, such as online catalogs or abstracting and indexing databanks, where it would be possible to expose truly vast numbers of individual records through the MHP (think here of RLG, PubMed Central, or OCLC's WorldCat), but where it is not clear which applications would actually find such large numbers of records useful. In some situations, we will want to be able to expose metadata for databases or services in the aggregate, so that users can identify and visit services that may contain useful information; yet the effective description of such services or large databases in the aggregate is a research problem that has received only limited exploration to date, and this exploration has met with only limited success.

One very interesting OAI-enabled service that we may see, which will also perhaps re-invigorate research in how to effectively describe databases, is something I think of as a *database summarizer*. This service would use the MHP to pull metadata for all of the individual records in a database, and would then perform computations that allow it to provide some kind of summary metadata record for the entire database as output; these summary records could then be returned to the database owner or operator or could be made available to other resource discovery services. Prior to the availability of OAI metadata harvesting, any research group that wanted to explore this area had to actually go out and obtain copies of various databases to experiment with.

Metadata Schemes

The Metadata Harvesting Protocol is a means of making machine-processable metadata widely available for use. It will create tremendous pressure for standards programs that are now developing schemes to codify and represent such metadata, especially the Dublin Core Metadata Initiative. MHP specifies unqualified Dublin Core as the lowest-common-denominator mandatory metadata scheme for interoperability purposes. This will likely lead to the first truly large-scale test of the real utility and practicality of unqualified Dublin Core for resource discovery. It is certainly clear that almost any metadata scheme can be "downgraded" into unqualified Dublin Core (in a non-reversible fashion), but the actual usefulness of such a coarse metadata scheme has been the subject of considerable debate and speculation. OAI applications may provide large-scale empirical data on this, which will be invaluable to the future evolution of the Dublin Core work.

The Dublin Core Initiative is also codifying the notion of *qualified* Dublin Core—a series of extensions to the base Dublin Core elements that can provide much greater precision but that can be "interpreted down" to unqualified Dublin Core in a consistent fashion by applications that are not knowledgeable about specific extensions. The final versions of the specifications for qualified Dublin Core have been very slow in issuing, and because many communities of practice will likely want to build on Dublin Core, rather than creating *de novo* metadata schemes, OAI metadata harvesting will add to the pressure to advance these standards.

One of my personal hopes is that because MHP is designed to facilitate the interchange of *computer-processable* metadata it will lead to progress not only in descriptive metadata that is assigned by human intellectual activity, but also in the development and implementation of content-based computationally derived metadata—computed profiles of digital objects based on their content, such as word occurrence frequency modules for textual objects or spectral signatures for images—which will support distributed content-based retrieval as a complement to retrieval by intellectually-assigned metadata. To date, there has been little progress in this area, because content-based retrieval has always occurred *within* the context and boundaries of a specific system.

Finally, at a broader level, the idea of community-based metadata schemes is central to the vision of the Metadata Harvesting Protocol. There has been a great deal of work in this area over the past few years, in part driven by the promise of XML and the growing interest in the interchange of computer-processable information using the Internet. Fundamentally, the development of these standards is a social process within a community, though it calls upon a poorly-codified body of knowledge in data structuring, descriptive practices, classification, and other areas. It is still very slow, and very expensive, to develop these community standards, and it is hard to predict which ones will be successful in terms of broad adoption or in terms of effectively meeting community needs over reasonably long periods of time. OAI metadata harvesting will increase the pressure to improve the speed and effectiveness of such standards development processes.

Conclusions

The Open Archives Metadata Harvesting Protocol opens many new possibilities which are yet to be explored. This means that it is difficult, and speculative, to establish strategies to exploit the new technology. But these opportunities are too important to be ignored.

For content suppliers, the way forward seems clear. They should prepare to offer metadata through the MHP interface. Yet they will need to think very carefully about what they are doing, both in terms of what metadata they want to expose and at what level of granularity, and in terms of the potential reuse of this metadata. This is particularly true for operators of online catalogs, though it is also a question for organizations mounting special collections of all kinds. Any organization offering access to a sophisticated networked information resource may find the MHP is a new way to make content available to a variety of innovative service providers.

For data-intensive scholarly communities in which data is widely distributed rather than centralized into a few key community databases, this interface may offer a new way to translate rather abstract investments in metadata standardization into tangible opportunities to contribute to operational systems for locating information resources. And it may have other far-reaching implications; for example, in communities where the resources to underwrite centralized databases haven't been available, or where the community practices emphasize local control of datasets by individual research groups, the base of available information may become much more visible to the community.

Finally, OAI metadata harvesting may offer a new bridge to bring innovation in networked information services and applications out of the research community more rapidly than has been the case in the past. Organizations that manage large databases and production information services are generally slow to innovate because their first priorities appropriately reflect the needs to exercise stewardship over the data and to provide reliable service to their user communities; most of their resources tend to be tied up in operations and maintenance. Researchers who want to explore new ways of organizing, presenting, or using these large data resources will now have a standardized way of extracting content without much disruption or cost to existing operational systems. This may be a powerful mechanism for enabling the development of new applications and services that have never before been possible.

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[1] It was announced in July 2001 that Ginsparg and the Los Alamos Preprint Archive will be moving to Cornell University.

[2] Visit <http://www.pubmedcentral.nih.gov/> and <http://www.publiclibraryofscience.org/> for more information.

[3] See <http://web.mit.edu/dspace/>.

[4] See <http://www.openarchives.org/meetings/SantaFe1999/sfc_entry.htm>.

[5] For more on this topic, see my article "When Documents Deceive: Trust and Provenance as New Factors for Information Retrieval in a Tangled Web" (*Journal of the American Society for Information Science and Technology* 52.1 [Jan. 2001]: 12-17), available at <http://www-cse.ucsd.edu/~rik/others/lynch-trust-jasis00.pdf>.

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THE METADATA HARVESTING INITIATIVE OF THE MELLON FOUNDATION

by Donald J. Waters, Program Officer,
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While the OAI Metadata Harvesting Protocol was being developed, the Mellon Foundation sponsored a series of workshops at Harvard University to explore how libraries and other repositories of scholarly information could effectively utilize the new protocol in conjunction with harvesting, search engine, and other core Internet technologies to make cataloging and related metadata about scholarly collections more visible to Internet users. The Harvard workshops produced two interrelated recommendations: first, that a set of leading repositories of scholarly materials begin to reveal metadata about their collections to potential portal services according to the specifications of the OAI protocol; and, second, that a series of experiments be organized to demonstrate the kinds of discovery and retrieval services targeted to the scholarly community that would be possible and sustainable given these metadata and the application of the Internet portal technologies.

By November 2000, the Digital Library Federation (DLF) had identified libraries and other repositories that were prepared to expend their own resources to reveal OAI-compliant metadata for over one million items in more than 50 collections. The Mellon Foundation then invited 16 institutions to suggest gateway or portal services that would use the OAI Metadata Harvesting Protocol and other technologies to support inquiries in a significant field or subfield of scholarly interest, or across a wide range of fields. Seven institutions responded with strong proposals and in June 2001 were funded with grants totaling approximately $1.5M.

Each of the seven institutions invited to participate in this initiative was asked to design projects that would test the application of harvesting and search engine technologies in one or more of the following ways:

- By delivering scholarly information from the "hidden web"—information in internet-accessible databases, including library catalogs, that are not normally accessible to the internet search engines.
- By handling formats that present special processing or presentation problems, such as the information hierarchies contained in Encoded Archival Descriptions (EAD) or metadata about visual resources.
- By constructing necessary tools or "middleware" such as registries or broker services.

Given these general parameters, the participants proposed an imaginative set of experiments.

Two institutions will design portal services based on metadata from broad, multi-institutional, and multi-disciplinary domains:

The Research Libraries Group (RLG)
RLG manages one of the largest union library catalogs in the world. It received support to explore how this major scholarly resource could be completely redesigned to take advantage of Internet portal technologies. In its proposed project, RLG catalog records would be made accessible via the Open Archives protocol to a standard Internet search engine, such as Google, and search results would be expected to link the user not only to a set of catalog entries, but also to a set of service options that might, for example, direct users how to purchase the book, find the nearest library that owns the title, find related works by the author or on the subject, or link to an online version if one exists. This project has the potential to revolutionize the way that access to library catalogs is designed and presented to users.

The University of Michigan (UM)
UM's library expects to harvest, index, and present metadata about digital library objects that are held by academic and scholarly institutions, but which are not currently accessible through standard search engines. UM plans especially to target the collections that DLF had identified. Like RLG, UM has not placed any limitations on subject domain. The University of Illinois at Urbana-Champaign (UIUC) will develop and provide UM with the actual harvester mechanism that will systematically collect, aggregate, and update the metadata from contributing institutions; UM will construct the indexing and presentation tools for organizing harvested data and then provide a search engine service.

The following three participants will focus primarily on the special problems encountered in harvesting metadata from archives and special collections:

University of Illinois at Urbana-Champaign (UIUC)
UIUC received support to develop a general-purpose harvesting tool that it will use to create a portal for searching special collection materials held by members of the Committee on Institutional Cooperation (CIC). UM also plans to use the harvesting tool, and UIUC plans to focus development on the special problems of using the portal as a vehicle for integrating information about special collections which are in the CIC and are each described using different standards: the EAD, the Text Encoding Initiative (TEI), and Machine Readable Cataloging (MARC). In developing its portal, UIUC plans to make use of the search and presentation tools that UM would be creating in its project.

Emory University
Emory expects to explore the feasibility of a scholarly portal service based on metadata harvested from selected archives in two research domains—politics and theology. The portal would refer primarily to the papers of major political figures and the institutional records of religious organizations.

Fourteen institutions have expressed an interest in contributing records to the portal and experimenting with the results.

Woodrow Wilson International Center for Scholars (WWICS)

The WWICS sought support to develop a service allowing scholars to search across the catalogs of major Cold War document repositories in the U.S. Not all of these archives have cataloged their documents, but those that have, including the Hoover Institution and the National Security Archive, employ very different schemes. Use of the OAI protocol would allow these metadata to be harvested from the different participating archives and indexed for searching through a common interface.

Finally, two institutions will create portal services based on harvested metadata referring to materials on specific topics, but across a range of formats:

University of Virginia (UVa)

The UVa Library holds one of the world's best collections of rare books and manuscripts in American literature and history, has been an international leader in digitizing materials from these collections, and hosts several innovative academic centers that make use of these materials. The Library received funding to exploit its rich resources in this area by harvesting metadata for an Information Community—a group of scholars, students, researchers, librarians, information specialists, and citizens—formed around American Studies. The metadata—which will cover a wide variety of formats, such as documents, maps, and data sets, and will span several disciplines—will be harvested initially from Virginia's own extensive and varied online resources, but the Library will also investigate collaborations with such institutions as the Thomas Jefferson Foundation, Virginia Tech, and the Smithsonian Museum of American Art.

Southeastern Library Network, Inc. (SOLINET)

SOLINET received support to harvest metadata for AmericanSouth.org, a portal that has been under development over the past year. It will initially gather, organize, and present online materials related to the history of the American South from ten participating institutions (Auburn University, Emory University, Louisiana State University, University of Florida, University of Georgia, University of Kentucky, The Kentucky Virtual Library, University of North Carolina at Chapel Hill, University of Tennessee at Knoxville, and Vanderbilt University). Selected scholars from these institutions will participate in the selection of materials and in the organization, design, and testing of the portal.

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Covering a wide span of subject domains and constituencies, these seven projects will explore the requirements for developing scholarly-oriented portal services based on the use of a variety of Internet technologies, including the new Metadata Harvesting Protocol to make the contents of library catalogs and other elements of the "deep" Web more easily accessible. Each project is highly experimental in nature, and is designed to explore not just the technical requirements, but a range of organizational, political, and economic issues associated with the development of scholarly portals. Although the OAI protocol was key to the conception and development of these projects, its role, relative to other issues, in many of them is relatively minor.

What is really at stake in these projects are much larger questions concerning the value of networked information. The annual study of college freshman, which UCLA's Higher Education Research Institute conducts each year, recently showed that a whopping 82.9 percent of new freshmen—more than four out of five students—are using the Internet for research or homework.[1] This finding raises all the usual questions about the uneven quality of Internet-based resources. A recent study of Harvard seniors, however, suggests a very different picture. The Harvard survey looks at student use of print, library electronic sources, and non-library electronic sources in researching papers in the humanities, social sciences, and natural sciences. The results revealed that the highest percentage of resources used (75% in humanities, 69% in social science, and 65% in natural science) were print materials, which students ranked higher than library and non-library electronic sources in four out of five factors. The Internet-based sources scored high only on the factor of convenience, while print materials scored high on the factors that make a difference in the quality of research and learning: generating the information for which the student is looking, the usefulness of the material, its reliability, and the availability of assistance.[2] It is, of course, difficult to combine the results of these two very different studies, but one suggestive interpretation is that a college course of study has a tremendous sobering effect in revealing the real value of the currently available Internet resources. If the seven projects that the Mellon Foundation has recently funded to explore methods of metadata harvesting achieve their goals, then the Internet will have come a large step closer to being an indispensable place for scholarly research by faculty, by those Harvard seniors, and by the incoming students who are relatively uninitiated in the practices of higher learning.

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This article is drawn from a presentation given at the Joint Conference on Digital Libraries in June 2001 and is published in the *ARL Bimonthly Report* by permission of the author.

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[1] L.J. Sax, et al. *The American Freshman: National Norms for Fall 1998*, Los Angeles: Higher Education Research Institute, UCLA Graduate School of Education and Information Studies, 1998.

[2] Harvard University, "Class of 2000 Senior Survey"; data supplied by the Harvard University Library.
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SPARC

Richard K. Johnson, Enterprise Director, Scholarly Publishing and Academic Resources Coalition

WHITHER COMPETITION?

by Richard K. Johnson, Enterprise Director, SPARC

Librarians have hotly debated the future of scientific publishing for several years, largely in response to the "serials crisis" caused by the skyrocketing prices of many scientific journals. Until now, however, the problem has attracted little attention from the very scientists that the scientific communication system exists to serve.

One explanation is that researchers generally do not pay directly for journals, and they are often unaware of issues faced by their libraries. Libraries themselves have shielded researchers from the reality of rising journal prices by engaging in financial contortions. For example, monograph budgets have often been squeezed to pay science, technology and medical (STM) journal subscriptions. This approach is not only unsustainable but also insufficient. Despite such measures, most libraries have been forced to cancel more and more STM subscriptions.

> *If academic institutions... acting individually or perhaps in concert through library consortia, were to establish e-repositories for the work of their faculty. ...These articles could in turn be "harvested" for inclusion in journals and portals that support themselves via fees. ...Perhaps then the market could regulate itself.*

Libraries are embracing substantial changes to redress the situation. In the 1990s, many explicitly recognized the objective of providing access to information, whereas traditionally libraries have emphasized ownership. This represents a fundamental shift for an institution with a centuries-old heritage of developing collections. Library consortia have also emerged as effective in squeezing somewhat better deals out of publishers for electronic licenses, thereby increasing access and reducing per-use costs of information. They have demonstrated that demand rises with decreasing prices in the digital world.

But traditions militating against a systemic change in STM publishing—change that would place the interests of science first—are deeply entrenched. Scientists depend on publishing for career advancement, but as they do not pay for journals they have little incentive to stop submitting to high-priced titles. And libraries continue to come under pressure to buy journals, some of which they cannot afford. This fundamental market distortion means that the system as it stands cannot regulate itself. It is a little like reform of U.S. election campaign funding. The chief financial beneficiaries of the system have little incentive for change. The impetus must come from the grassroots.

It is important to remember who are the consumers in scientific communication: the authors, who want their work to be widely disseminated and recognized; readers, who would like convenient, barrier-free access; and institutions, which require cost-effective means both to support and evaluate employees and to teach students.

What is needed is to harness the motives of all the players in the system to best serve the interests of consumers. More effective incentives are needed throughout the system to encourage broad, dynamic, cost-effective communication. The unleashing of competitive forces is fundamental to achieving these goals.

Consumer Boycotts are "Powerful Weapons"

The thousands of authors who have signed the Public Library of Science pledge may ultimately represent a potent force for competition. If the journals in which they have published in the past do not comply with their call for open access to back issues, signatories threaten to move to other publication venues that better satisfy their demands for access. Consumer boycotts can be a powerful weapon in a market economy. The current debate also shows how far we have come since the days when discussion of the journals crisis was largely limited to librarians talking to other librarians. Ultimately, however, greater competitive forces must be introduced throughout the system itself.

Although journals run by not-for-profit publishers generally cost less than those produced by commercial publishers, the latter currently dominate the US$9.5 billion STM information market (*Industry Trends, Size and Players in the Scientific, Technical & Medical [STM] Market*, Outsell, Burlingame, California). The Scholarly Publishing and Academic Resources Coalition (SPARC), comprising some 200 research institutions and libraries, was launched in 1998 to help not-for-profit and independent publishers inject more competition into science publishing.

Among other things, SPARC has aided the launch of high-quality journals aimed at competing head-on with expensive titles, with its member libraries subscribing to the lower-priced version. The most dramatic example of rebellion is perhaps the decision in 1998 by Michael Rosenzweig, a biologist at the University of Arizona, to defect, along with the entire editorial board, from the Kluwer journal *Evolutionary Ecology*. Rosenzweig had become disenchanted with price increases—averaging 19% annually—at the journal that he had established a dozen years earlier. So he formed an alliance with SPARC to create an alternative, *Evolutionary Ecology Research*, and to sell it to institutions at around one-third of the $777 price of the Kluwer journal. *Evolutionary Ecology Research* now attracts the top research in the field, whereas *Evolutionary Ecology* has fallen a year behind schedule in publishing issues and has recently had to slash its price by 40%.

Web "Portals" Bring New Risk of Monopolies

With the advent of the Internet, journals may be supplanted as the basic currency of scientific communication by individual articles or other modules of information. Modular information can be grouped in multiple ways, for example, in a narrow discipline-specific, or "vertical", fashion, or as large aggregations. Increasingly, scientists turn to variants of such aggregations—portals, vortals, communities, and channels—which bring together journals, as well as other relevant information, in a field. It is therefore essential for competition that no single aggregation be allowed to obtain a monopoly; the dominant channels will set the norms for access terms and pricing.

> *In the long term, the best approach to scientific publishing may be to engineer the separation of the information repository function from the information service function.*

Many of the large publishers have nearly completed digitizing the archives of their journals and are moving to the next phase, in which they will present vertical channels. Competition in this arena will be broader than that among individual journals; publishers will target authors and users of clusters of related journals, and increasingly the channel's *brand* may be the main competitive element, as opposed to the journals themselves.

Content on such channels may be inextricably interwoven with task-oriented tools designed to hook the user. For example, consider two recent strategic acquisitions of the giant Elsevier Science Publishing: Endeavor, a library automation software provider; and Afferent, a developer of "workflow products" for chemists. The potential to integrate journal content tightly with such tools also means that users become accustomed to the system, and can be reluctant to expend the effort and disruption that switching to competing systems inevitably involves. This strategy is aimed at protecting the publisher's high-profit revenue streams.

It may already be too late to ensure competition in some fields where, through acquisitions and mergers, some publishers have built such a critical mass of content and value-added services that no one can challenge their "first place to look" status. In other areas, however, the best and largest share of content is still in the hands of scientific societies and others—including some responsible commercial publishers—who are more motivated by the needs of their communities than are many commercial publishers. But for these players to be competitive on the Internet, they may need to cooperate, sharing the costs of web infrastructure and assembling a critical mass of content to attract large numbers of users. Only in this way will they be able to offer at a reasonable price the competitive array of services required by the market. BioOne, a collaboration of societies and libraries co-founded by SPARC, is one model. Others include HighWire Press and Project Euclid, a collaboration between Cornell University Libraries and Duke University Press that will offer independently published mathematics journals a shared infrastructure for publishing.

Reinventing Scientific Publishing

In the long term, the best approach to scientific publishing may be to engineer the separation of the information repository function from the information service function. (This framework has been effectively articulated by Herbert Van de Sompel and others, and has recently been advanced by release of the Open Archives Metadata Harvesting Protocol [see Open Archives Initiative[1]]). And Stevan Harnad has outlined his view of the benefits of institution-based self-archiving.[2]

The pioneering Los Alamos e-print repository in physics encapsulates this concept of storing the raw literature in free-access databases, with journals, portals and other services acting as value-added overlays. So far only a few other disciplines have adopted the model, but its time may now have come.

This approach offers the promise of breaking the publishers' monopoly—and the pricing power that goes with monopoly—on unique individual articles. Openly accessible repositories would co-exist with published journals. Since the repository does not answer the need of the scientist to have her work "certified" (as through peer review) or conveniently accessible, societies and other publishers have a continuing relevance in the scientific communication economy. But their new business models must be based on the utility they add to information.

Imagine if academic institutions, which are the largest source of published research, acting individually or perhaps in concert through library consortia, were to establish e-repositories for the work of their faculty. Government labs and even private industry might do the same. These articles could in turn be "harvested" for inclusion in journals and portals that support themselves via fees (for example, subscriptions, author charges, sponsorship and advertising, and so on) based on the market value buyers attach to their enhancements and convenience. Perhaps then the market could regulate itself.

Broad adoption of this model has been hampered by the widespread perception of serious stumbling blocks. On closer inspection, however, those concerns most frequently raised seem surmountable:

- **The risk of making non-peer-reviewed research available.** The fact that authors would need to be affiliated with an institution would already provide a filter of sorts. In particular disciplines, other screening mechanisms could be supplemented if required. Such archives could be provided to researchers, clearly labeled as not having been peer-reviewed; the latter would be left to overlay journals or portals. So free access and minimum screening do seem to be feasible.
- **Confusion as to what is the "official" version of an article.** This would always be the peer-reviewed version. Reciprocal links could be maintained between the archived reports and the peer-reviewed one.
- **Ownership.** This requires that universities and other institutions work out protocols with their employees recognizing the right of the institution to keep an archive documenting the research conducted there.
- **Journals may refuse to publish articles that are available in institutional repositories.** Journals will modify their policies if authors collectively insist on it.

Undoubtedly, a large shift in this direction would require careful consideration of these and other obstacles; but the advantages of the access it would offer seem compelling. Institutions are beginning to experiment with the approach. MIT Libraries and the Hewlett Packard Company are developing the DSpace project, for example, to build a stable digital archive for the intellectual output of MIT's faculty and researchers.[3] DSpace could serve as a model for other institutions, resulting in a federation of systems that make available the collective intellectual resources of the world's research institutions. CalTech's Scholars' Forum[4] and the Open Archives Initiative are two other undertakings aimed at refocusing scholarly communication on the core purposes of scholarship.

The outcome of such experiments is difficult to predict, but it is clear that the Internet is provoking a sea change in the way we think about scientific communication. We now have an opportunity to explore associated issues such as access control, rights management, versioning, retrieval, community feedback, service development, and economic models. Academic institutions functioning as repositories would in principle encourage publishers—non-profit and commercial alike—to focus their efforts on providing services on top of these.

There will be no single magic bullet solution to broadening access to scientific information. But the successful reforms will be those that best compete for consumers—authors, readers, and institutions. All of these groups share a desire for broad low-barrier access to the results of research. If they can act together to make the needed changes, the future seems bright for driving down costs and expanding access to scientific data and reports.

This article was originally published as a contribution to the Nature.com web debate on future e-access to the primary literature, 15 June 2001 (available at <http://www.nature.com/nature/debates/e-access/Articles/johnson.html>).

[1] See <http://www.openarchives.org/>.

[2] Stevan Hamad, "The Self-Archiving Initiative" *Nature* (26 April 2001), available at <http://www.nature.com/nature/debates/e-access/Articles/hamad.html>.

[3] <http://web.mit.edu/dspace/>

[4] <http://library.caltech.edu/publications/ScholarsForum/>

SPARC EUROPE LAUNCHES

SPARC and LIBER, the principal association of the major research libraries of Europe, launched SPARC Europe in early July. SPARC Europe will facilitate competition in the European scientific journals marketplace and introduce advocacy initiatives tailored to the European research and library communities. A European membership base, including a number of current SPARC members, will support this work.

For more about SPARC Europe, including information on membership inquiries and e-mail updates, visit <http://www.sparceurope.org> or sign up to receive bulletins at <http: //db.arl.org/sparc/contacts>.

FEDERAL RELATIONS

Prudence S. Adler, Associate Executive Director, Federal Relations and Information Policy

LIBRARIES AND THE TASINI CASE

On June 25, 2001, the U.S. Supreme Court issued its decision in the case of *The New York Times v. Tasini*. In a decisive 7-2 ruling, the Justices upheld an appeals court ruling that the reuse of a freelance author's work on CD-ROMs and in commercial electronic databases without the author's permission constituted copyright infringement.

What Are the Key Issues for Libraries?

The *Tasini* case involved questions of fairness, equity, and a recognition of an author's rights to retain, modify, or assign copyright on a work he or she has created. At the same time, ARL and ALA represent institutions and professionals responsible for collecting and preserving historical, scholarly, and other records, including periodicals and other collective works. A significant part of the mission of these institutions and individuals is to make available to researchers and the public at large reliable, accessible, comprehensive repositories of back issues of newspapers, magazines, journals, and other periodicals. Many ALA and ARL members subscribe to the very commercial electronic databases and CD-ROM products that are at issue in the *Tasini* case. Libraries were concerned, therefore, in this case with balancing the needs of long-term preservation, the nature and cost of access to information in commercial electronic databases, and the fairness of compensating an author for his or her work.

Why Did ALA and ARL Decide to Support the Freelance Authors?

During the years the *Tasini* case was heard in the lower courts, ARL and ALA considered carefully what position each association should take. Having interests on both sides of the case, and having been approached by the lawyers of each side, ALA and ARL chose to remain neutral. However, when the Supreme Court decided to hear the case, ARL and ALA were once again approached by lawyers from both sides to file in support of their respective positions.

Having read several of the filings before the Court, it became clear to the boards of directors of both associations that an *amicus* brief was necessary to address the key library issues in the case and to correct inaccurate information. After much discussion, both boards decided that support for the freelance writers was consonant with association principles and positions.

The library community believes that copyright exists for the public good. Its fundamental purpose, according to the ARL Statement of Principles on Intellectual Property, "is to serve the public interest by encouraging the advancement of knowledge through a system of exclusive but limited rights for authors and copyright owners." ARL and ALA support the right of an author to decide whether to retain, modify, or assign copyright on a piece that he or she has created. Libraries also recognize and respect the public interest in having access to the work produced by the freelancers.

In February 2001, ALA and ARL filed a "friend of the court" brief to present the library perspective to the U.S. Supreme Court concerning the practical effects of the issues at stake in the case. The brief refuted a number of inaccurate claims and offered constructive ways to balance the rights of freelance authors, commercial electronic database producers, publishers, and the public.

What Are the Implications of the Court's Decision for Libraries?

The Supreme Court rejected the publishers' argument that a ruling for the authors would have "devastating" consequences. In arguing the case, the publishers claimed that they would be forced to delete articles by freelance writers in their databases, and that it would not be feasible to remunerate the authors due to the large number of works involved as well as the expense of locating these contributors. Unfortunately, some of the publishers are continuing to take this position in the wake of the Court's decision. It should be noted, however, that there are financial implications for the publishers regardless of whether they choose to track and delete articles by freelancers or if they decide to locate and reimburse these authors.

The Supreme Court explicitly noted in its opinion that deletion of the freelance writers' articles was not necessarily the only outcome and that publishers could explore other alternatives. The Justices pointed out that there are "numerous models for distributing copyrighted works and remunerating authors for their distribution," such as the system of blanket performance licenses for musical compositions.

The impact of the Court's ruling will be primarily on older works that currently reside in commercial electronic databases such as Lexis-Nexis. Publications like *The New York Times* now require permission for electronic republication of works by freelance authors, but this was not standard industry practice until fairly recently.

Equally important, implicit in the Supreme Court's decision was the recognition that the nation's libraries and archives continue to provide access to the historical record of periodicals and newspapers. In addition, the Court's ruling recognized that certain archival media, such as microfilm and microfiche, do not infringe freelance authors' copyrights. Thus, the historical record will continue to be available to researchers and the public.

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Both ALA and ARL continue to monitor the effects of the Supreme Court's ruling in the *Tasini* case and its impact on libraries. For further information, please see <http://www.arl.org/info/frn/copy/tasini_final.html>, <http://www.ala.org/washoff/copyright.html>, <http://www.nwu.org/>, and <http://www.nytco.com/pressroom/freelance/index.html>.
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Camille Hazeur, Program Officer for Training and Diversity

ARL WELCOMES THE 2001–02 LEADERSHIP AND CAREER DEVELOPMENT PROGRAM PARTICIPANTS

The Leadership and Career Development Program seeks to address the dismal state of diversity in research libraries by offering a multifaceted development experience to librarians of color. This experience results in Program participants taking on enhanced and often new leadership roles, and serving as role models for new recruits to the profession. The LCD Program is designed to take maximum advantage of ARL's direct access to current library and higher education leaders, and to build on the strengths of two ARL programs: the Diversity Program and the Office of Leadership and Management Services (OLMS).

The Program consists of several components:

Two Leadership Development Institutes

The institutes are designed to intellectually engage the group, focusing on horizon issues in the library community and exposure to the library and higher education leaders. The first institute (August 2001) is hosted by the University of Kansas and the second (February 2002) by the University of Arizona.

Three Online Lyceum Courses

Online courses are designed to supplement the institute curriculum and keep the group engaged over the course of the year. Course topics are: motivation, fundraising and fund development, and influencing skills.

Mentoring Relationship

Each participant is partnered with an ARL library director in a mentoring relationship. Directors and participants are encouraged to share ideas about career development issues, leadership opportunities in the profession, and participants' research projects.

Research Project

Because professional credibility, particularly in the academic and research library community, is enhanced through scholarly publication, scholarly research is a core component of this program. Participants get feedback on their research proposals and direction from library scholars and journal editors during the institutes.

Questions related to program purpose, design, and content may be directed to Camille Hazeur, Program Officer for Training and Diversity <camille@arl.org> or DeEtta Jones, Director, Organizational Learning Services <deetta@arl.org>.

2001–02 Leadership and Career Development Program Participants

José A. Aguinaga
Assistant Librarian/Liaison Librarian
Arizona State University West
Project: Management of Remote Reference Service

Ibironke O. Lawal
Engineering and Science Librarian
Virginia Commonwealth University
Project: The Role of E-print Servers in Scholarly Communication

Ellis B. Beteck
Deputy Library Manager
USAID Library
Project: The Role of Information Services in International Development: The Experience of the United States Agency for International Development Library (USAID Library)

Angela S. W. Lee
Head, Social Work Library
University of Washington
Project: An Outcomes-based Evaluation of Web Tutorial Programs for Health and Social Work Students

Tracy Y. Allen
Head of Access Services
Columbia University Health Science Library
Project: Guidelines to Assist Librarians in Establishing Relationships with Faculty

Vanessa D. Middleton
Electronic Services Librarian, Research Support & Consultation Coordinator
Wayne State University
Project: Global Librarianship: African Initiatives

La Nina M. Clayton
Public Services/Collection Development Librarian
The George Washington University
Project: Academic Libraries in Library Cooperatives

Sharon D. Horne Morris
Librarian III/Assistant Head Government Publications
Johns Hopkins University
Project: Canaries in the Mine: Developing an Effective Short-term Assessment Tool

Raquel V. Cogell
Librarian for African American Studies
Emory University
Project: A Survey of African American Primary Sources in Georgia

Veronda J. Pitchford
Coordinator of Membership Services & Special Projects
Chicago Library System
Project: Impact of University Library Participation in "Town and Gown"

Susan A. Vega Garcia
Assistant Professor/Reference & Instruction Librarian, Bibliographer
Iowa State University
Project: Undergraduate Student and Faculty Attitudes Toward Web-based Library Instruction

Susana Tejada
Art & Art History Subject Specialist
University of Buffalo, SUNY
Project: Art as Archive: The Formation of Cultural Coalitions Among Museums, Libraries, and Archives

Gisele Ira Glover
Head, Music Library/Associate Librarian
SUNY at Stony Brook
Project: Develop a Bibliographic Instruction Program at SUNY Stony Brook Music Library

Judy Tsou
Head, Music Library; Acting Head, Arts and Architecture Libraries
University of Washington
Project: Assessing the Diversity "Barometer" Within the Library

Anita H. Grant
Head, Circulation Services
Ohio University
Project: Conduct International Student and Faculty Needs Assessment and Develop Best Practices on Providing Improved Circulation Desk Service

Deborah Turner
Head of Access Services
University of California, Santa Cruz
Project: Studying Accomplishments of Peer Information Counselors as a Staffing Model and Its Application to Access Services Departments

Jacqueline Johnson
Special Collections Cataloger
Miami University
Project: Evaluate the Effectiveness of Miami University's Children's Library in the Village of Abrafo-Odumasi

Consuella Askew Waller
Projects Assistant
Association of Research Libraries
Project: Transformational or Transactional? Leadership Styles of Universities and Their Impact on Library Services

Jiun-Huei Kuo
Head of Cataloging
Rice University
Project: Integration of Information Technology in Library Services, and Its Application to East Asian Libraries

Barbara Williams
Engineering Librarian
University of Arizona
Project: Assist Librarians in Their Collection Development Areas by Creating "Faculty Profiles"

BEST COPY AVAILABLE

G. Jaia Barrett, Deputy Executive Director

ARL, CARL ASSESS THE DIGITAL FUTURE

One hundred and four member institutions were represented at ARL's 138th Membership Meeting, *Creating the Digital Future*, held in Toronto on May 23-25. The meeting was held in conjunction with the Canadian Association of Research Libraries and was hosted by the University of Toronto Libraries. Chaired by ARL President Shirley Baker (Washington University, St. Louis) the programs focused on how research institutions are developing the infrastructure and expertise necessary to support the processes of scholarly publishing and to operate programs that embrace access to born digital and digitized primary source materials. Papers and presentations from the meeting are available on the ARL website at <http://www.arl.org/arl/proceedings/138/index.html>.

UNIVERSITÉ DE MONTRÉAL JOINS ARL

At its 2001 Spring Membership Meeting, the ARL membership voted to invite the Université de Montréal Library to join as the 123rd member. Located in Montréal, the university is one of the two premier French-language comprehensive research universities in Canada. Jean-Pierre Côté is the Library Director General and accepted ARL's invitation on behalf of the Library.

The Université de Montréal, founded in 1878, and its two affiliated schools of business and engineering today enroll approximately 48,400 students organized into 13 faculties, more than 60 departments, and four teaching hospitals. More information about the Université de Montréal may be found at <http://www.umontreal.ca/>.

THE STATUS & FUTURE OF SPECIAL COLLECTIONS

Building on Strength: Developing an ARL Agenda for Special Collections, a working symposium on the future of special collections in research libraries, was held at Brown University June 27-29, 2001.

This event was a unique opportunity for research library directors, heads of special collections, and invited scholars and guests to discuss timely issues concerning the potential of special collections. The goals were to call attention to the unique role of special collections within research institutions and to find ways to use information technology more effectively to explore and expand the value to research and teaching of these important resources. There was also a strong interest in identifying the factors that facilitate or impede the full realization of this potential in an electronic age.

In his keynote address "So What's so Special?" Syracuse Librarian Emeritus David Stam emphasized that "Our special collections must be democratized, must overcome their exclusionary origins in the monastery or aristocratic library, must shed their image of aloofness and preciosity, must get their precious treasures and scholarly ephemera into the sometimes dirty hands of potential users, must place a higher priority on access to unprocessed material, and must build a wider audience."

Presentations were also made by William Crowe (Kansas), Sarah Thomas (Cornell), Shirley Baker (Washington in St. Louis), and Robert Byrd (Duke). Merrily Taylor (Brown) and Joe Hewitt (UNC-CH), co-organizers of the symposium and current and past chairs of the ARL Research Collections Committee, respectively, also delivered comments and encouraged participant discussion. Break-out sessions then focused discussion on issues to form the basis of a proposed ARL action agenda for special collections. The draft agenda, along with the presentations from the symposium, is available on the ARL website <http://www.arl.org/special/index.html>.

The symposium was supported with grants from the Gladys Krieble Delmas Foundation and The Andrew W. Mellon Foundation.

Special Collections in ARL Libraries: Results of the 1998 Survey Sponsored by the ARL Research Collections Committee

by Judith M. Panitch, Research and Special Projects Librarian, The University of North Carolina at Chapel Hill. Washington, D.C.: ARL, 2001. 123 pp.

Until this survey, no systematic data had been collected on special collections in ARL libraries for nearly 20 years. The results provide a snapshot of special collections at the end of the twentieth century. The data from this survey not only supply information for local decisions about special collections, but also identify areas for further investigation. Special collections constitute a vast and varied resource, and the overall trend is one of growth. However, some areas of concern remain. This unique volume not only provides the survey results (including 45 tables of data), but also explores these concerns.

The book is available from ARL Publications <arlpubs@arl.org>. The price for ARL members is $44 per copy; the nonmember price is $100 per copy.

NEW MEDIA RELATIONS HANDBOOK AVAILABLE

Have you ever wondered how to work with the media to bring recognition to the important services and projects in which your library is engaged? ARL and SPARC have created a guide for libraries and library organizations that want to create a successful media relations plan. *Media Map: Charting a Media Relations Strategy* is available as a PDF file at <http://www.arl.org/mediamap.pdf>. It is of use to directors of libraries and library organizations; public information officers and public affairs/communication officers; and anyone who is interested in what it takes for a worthy story to see the light of day.

HONORS

Joseph Branin (Ohio State), **Frances Groen** (McGill), and **Suzanne Thorin** (Indiana) are the recipients of the ALCTS Blackwell's Scholarship Award for their article "The Changing Nature of Collection Management in Research Libraries." The award cites that the article "cogently outlines important economic and cultural drivers that are shaping the future of collection management activities." The paper was originally prepared by the authors for the ARL Research Collections Committee and subsequently was published in *Library Resources and Technical Services* 44.1 (Jan. 2000): 23-32.

Bernard Dumouchel, Director General, Canadian Institute for Scientific and Technological Information, was named winner of the CARL/ABRC Award for Distinguished Service to Research Librarianship.

Ernie Ingles, Associate Vice President of Learning Systems and Chief Librarian at the University of Alberta, has been named a Specially Elected Fellow of the Royal Society of Canada and was awarded the Canadian Library Association's Outstanding Service to Librarianship Award.

North Carolina State University Libraries received the Special Achievement in GIS Award, presented by ESRI, for its accomplishments in geographic information system technology.

Sarah Pritchard, University Librarian at the University of California, Santa Barbara, was named the 2001 winner of ACRL's Women's Studies Section Award for Career Achievement.

Brian Schottlaender, University Librarian at the University of California, San Diego, is the recipient of the 2001 Margaret Mann Citation presented by the Cataloging and Classification Section of ALCTS.

TRANSITIONS

Alabama: Louis A. Pitschmann was named Dean of Libraries, effective July 16. He was formerly Associate Director for Collection Development and Management at the University of Wisconsin at Madison.

University of California, Riverside: James C. Thompson has announced his retirement as University Librarian effective December 2001.

Center for Research Libraries: Bernard F. Reilly, Jr. was appointed President of the Center for Research Libraries, effective September 10. Since 1997 he served as Director of Research and Access at the Chicago Historical Society. He was previously Head Curator in the Library of Congress Prints and Photographs Division.

Columbia: James G. Neal was named Vice President for Information Services and University Librarian, effective September 1. He is currently Dean of University Libraries at Johns Hopkins University.

Florida State: Althea Jenkins was named Director of the Florida State University Library, effective August 1. She was previously ACRL's Executive Director.

Georgetown: Artemis G. Kirk was named University Librarian, effective August 27. She was previously Director of University Libraries for the University of Rhode Island since 1998.

Johns Hopkins: Nancy Roderer was named Interim Director of the Sheridan Libraries and Interim Dean of University Libraries, beginning in September. She will also continue in her current role as Director of Welch Medical Library.

National Agricultural Library: Pamela André retired June 1 as NAL Director. NAL is rotating the Acting Director position; Eleanor G. Frierson, NAL's Deputy Director, served initially in this role. Effective August 6, Gary McCone, Head of Information Systems Division, is Acting Director.

New Mexico: Robert Migneault, Dean of Library Services, will step down from that position July 1, 2002.

Texas Tech: E. Dale Cluff, Dean of University Libraries, has announced his intention to retire on August 31.

Washington State: Virginia Steel was named Director of Libraries effective no later than September 1. She is currently Associate Director for Public Services at MIT.

Wayne State: Sandra G. Yee was appointed Dean of Wayne State University Library System, effective May 2001. She had previously served as Dean, Learning Resources and Technologies at Eastern Michigan University.

Yale: Alice Prochaska was appointed Yale University Librarian, effective August 1. She served as Director of Special Collections at the British Library since 1992.

York: Cynthia Archer was appointed University Librarian at York, effective August 1. Previously she served as Associate University Librarian at Windsor.

ARL STAFF TRANSITIONS

Alison Buckholtz was promoted to Associate Enterprise Director of SPARC. Alison may be reached at <alison@arl.org>.

Camille Hazeur was named Program Officer for Training and Diversity, effective July 16. Camille has done extensive consulting at a variety of colleges and universities on a range of management issues, including sexual and racial harassment, disability, diversity, and the cultural/racial climate. At ARL she will serve as adjunct faculty member with the OLMS and manage two major ARL library diversity recruitment and professional development programs: the Initiative to Recruit a Diverse Workforce and the Leadership and Career Development Program. Camille may be reached at <camille@arl.org>.

Judith Matz joined ARL in May as Communications Officer. A historian by training, Judith came to ARL from the National Education Knowledge Industry Association (NEKIA). She may be reached at <judith@arl.org>.

Marianna Wackerman joined ARL in June as OLMS Program Assistant, handling registration and OLMS customer service. She was previously an indexer for medical and business books and journals. She may be reached at <marianna@arl.org>.

Consuella Askew Waller joined ARL in May as the New Measures Projects Assistant for LibQUAL+ and New Measures Initiatives. She was previously Reference Librarian/Distance Learning Librarian at Howard University Library. Consuella may be reached at <consuella@arl.org>.

Mark Young joined ARL full time in February, holding the position of Research Assistant for the Statistics and Measurement Program. He may be reached at <mark@arl.org>.

NEW FACES AT ARL

From left to right: Camille Hazeur, Program Officer for Training and Diversity; Judith Matz, Communications Officer; Marianna Wackerman, OLMS Program Assistant; Consuella Askew Waller, New Measures Projects Assistant; and Mark Young, Research Assistant for Statistics and Measurement.

OTHER TRANSITIONS

Association of College and Research Libraries: Mary Ellen Davis was named Executive Director of ACRL, effective August 1.

Institute of Museum and Library Services: The Senate confirmed Robert S. Martin to serve as Director of the IMLS. He was previously professor and Interim Director of the School of Library and Information Studies at Texas Women's University in Denton, Texas.

National Endowment for the Humanities: The White House nominated art historian Bruce Cole of Indiana University to serve as the next chairman of the NEH. Mr. Cole is Distinguished Professor of Fine Arts and Professor of Comparative Literature in the Hope School of Fine Arts at Indiana. He was appointed to the National Council on the Humanities by George Bush, Sr. in 1991 and served on the Council until 1999.

Special Libraries Association: Roberta I. Shaffer was named as Executive Director of the SLA effective September 4. She is presently Dean and Professor of the Graduate School of Library and Information Science at the University of Texas at Austin.

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ARL CALENDAR 2001

September 10–28	The Role of Assessment in Advancing Diversity for Libraries *Online Lyceum Course*
September 22–23	New Ways of Listening to Library Users: Tools for Measuring Service Quality *Seattle, WA*
September 26–28	Advanced Licensing Workshop *Chicago, IL*
October 8–November 16	Measuring Library Service Quality *Online Lyceum*
October 10–12	Library Management Skills Institute I: The Manager *San Antonio, TX*
October 16–18	**ARL Board and Membership Meeting** *Washington, DC*
October 19-20	ARL Forum on Collections & Access Washington, DC
November 7–9	Project Management Institute: Getting Things Done or Getting the Outcomes You Want *Raleigh-Durham, NC*
November 8–9	Shaping ILL/DD in the 21st Century *University of Michigan/ARL* *Ann Arbor, MI*
November 12–13	Building a Culture of Assessment in Libraries Workshop *Washington, DC*
November 12–December 7	Coaching for Performance *Online Lyceum Course*
November 29–30	CNI Fall Task Force Meeting *San Antonio, TX*

ARL IN 2002

February 7–8	**ARL Board Meeting** *Washington, DC*
May 14–17	**ARL Board and Membership Meeting** *Los Angeles, CA*
July 22–23	**ARL Board Meeting** *Washington, DC*
October 15–18	**ARL Board and Membership Meeting** *Washington, DC*

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BEYOND CORE JOURNALS AND LICENSES: THE PATHS TO REFORM SCIENTIFIC PUBLISHING

by Jean-Claude Guédon, Université de Montréal

INTRODUCTION

Thirty years after having been detected, the serial pricing crisis now reveals itself as a deep transformation in the communication system of science, and not simply as a regrettable side consequence of apparently uncontrollable external factors, such as currency fluctuations or increases in the cost of living. More recently, the site licensing of online journals has brought about so many changes in the relationship between readers/users, libraries, and publishers that expressions such as "paradigm shift" or even "revolution" (or rather counterrevolution) are easy to marshal. In effect, and this is the basic premise of this paper, the system of science communication has been reengineered twice to the sole benefit of major, international publishers, with grievous consequences for the public and open spaces of knowledge defended by libraries. Meanwhile, research scientists in rich, elite institutions have remained largely unaware or indifferent to this whole situation, as the price spiral of journal costs does not appear to affect them directly. This is a shortsighted viewpoint, of course, as I shall try to demonstrate, but it is not widely recognized among research scientists.

To understand the double revolution that has so deeply, yet silently, transformed the communication of fundamental scientific results, it is useful to plunge back to the historical roots of scientific publishing so as to retrieve its original meaning. It is also necessary to examine what scientists try to achieve when they publish or read. In this paper, I shall limit myself to the results of research in the natural sciences and engineering that their creators wish to give away in order to achieve authority, visibility, and even prestige. I am leaving aside all publications related in some ways to patents, as well as to the social sciences and the humanities (SSH). In one case—desire to patent—we are no longer within the confines of what will be termed here the "game of science," but rather are in the realm of commercial strategies; in the other case—social sciences and humanities—we find ourselves within the kinds of games that, although analogous to natural science in many ways, remain nevertheless sufficiently different to require separate treatment. For example, citation patterns and paradigmatic structuring in the SSH do not work in the same way as in the natural sciences. I will treat SSH publishing in another, later paper.

HOW AND WHY WERE SCIENTIFIC JOURNALS CREATED?

A Social Registry of Inventions and Innovations

Henry Oldenburg created the *Philosophical Transactions of the Royal Society of London* in 1665. Unlike the *Journal des sçavans* in Paris, the London publication did not aim so much at broadcasting news to the emerging Republic of Natural Philosophy as it tried to set itself up as the arbiter of innovations. Similar to a land registry, *Phil Trans*, as it is often familiarly called, wanted to act as the reference work that would allow assigning intellectual paternity to the right individual for all to see. In the 17th century, this question of intellectual paternity was the object of much attention for several reasons:

- Natural philosophy was not always treated with favor by centers of power, be they religious or princely in nature. As squalid "scientific paternity" and priority disputes certainly did not bolster the cause of dignity, solutions were sought that might help remove the scientific tribes' inner disputes from the public eye.

- Then, the question of intellectual property stood front and center as printers kept trying to ascertain their grip on a trade that, from their perspective, appeared poorly regulated. In short, printers wanted to transform the category of writers into that of owners (of a text), thanks to the work involved in the writing. A writer who is the legal owner of a text becomes an author and, as such, he/she can then sell his/her property just as he/she could sell a piece of land: exclusively and in perpetuity. Early on, however, copyright law added a time limit on the ownership of intellectual property, not so much to support the Public Good as to assert the principle of Royal Prerogative. Remember, this was a time in British history dominated by a tug of war between absolute and constitutional monarchy.[1]

The lack of a public registry of discoveries, inventions, and innovations had often forced natural philosophers to resort to strange tactics to ensure their paternity claims, as when coded messages were broadcast to various colleagues so that they would know that some, yet undisclosed, discovery claim was being made. Natural philosophers were also limited to finding patrons so long as the lack of an efficient registration system prevented them from acting as full-fledged authors/owners who could submit their work to the verdict of an intellectual market.

With *Phil Trans*, all this began to change. A kind of co-optations system based on peer review began to emerge, which bestowed honor and visibility to those whose works were deemed of sufficient value to be duly registered in the printed registry. The multiplication of printed copies and their dissemination throughout Europe ensured the validity of the claim. In short, Oldenburg had invented the record of a kind of parliament of science. Through peer review, it could confer a form of intellectual nobility upon individuals. Thus was established the game of science, whereby giving away what one had discovered was paradoxically the best way to ensure one's intellectual ownership of it. Also, the incentive of giving away results, although they had been acquired after much expense in time, money, and effort, made sense because the "symbolic capital"—an expression originally coined by the sociologist Pierre Bourdieu—thus accumulated could then be translated into employment and other various, tangible rewards, including the earlier form of patronage.

The result of this operation was not an egalitarian republic of natural philosophy; various speculations on the best way to establish such a republic—e.g., the *New Atlantis* by Francis Bacon—also included a hierarchical vision of science. However, in the latter case, the hierarchy was based on an epistemological hypothesis that translated into a graduated division of labor. In Oldenburg's scheme, on the other hand, the hierarchy was based on one's ability to lay claim to intellectual ownership—a clear consequence of one's personal abilities as well as the material conditions in which the work is done. A complex mix of excellence and elitism ensued that has accompanied science ever since.

IN THE GUTENBERG ERA: THE FUNCTIONS OF SCIENTIFIC JOURNALS

The Perspective of Scientists

Librarians have long noted that scientists often appear in two guises: authors and readers. The latter want all the documentation they need; the former publish where they can reap the maximum amount of visibility, authority, and prestige. The scientist as reader meets the problem of the cost of journals in the guise of missing titles: the library simply does not have enough money to fill everybody's complete needs; the scientist as author does not think about prices when he/she seeks the best possible evaluation through publication.

It must also be noted that scientists do not always read in the same manner. When they look for information in the course of pushing an investigation, they use investigative methods that are both pragmatic and varied. At that stage, they appear like detectives and will find the needed information through a wide variety of means: articles, of course, but preprints, e-mails, phone calls, etc. are probably used more often. On the other hand, when they write articles, scientists carefully check the boundaries between what they own and what others own. Oldenburg's registry acts fully as intended at that stage of the scientific enterprise.

Scientists want to be published in the "best" journals because they want to benefit from the "best" evaluation. This process is patently a social construct; although it tries to present itself as an objective procedure that weeds the wheat from the chaff, and while it succeeds to some extent, it cannot claim to do so perfectly or to avoid errors. It acts at best like an imperfect and somewhat unreliable filter. No amount of professional or ethical rigor can change this regrettable but, alas, unavoidable situation. If the scientific enterprise manages to achieve reliable results, it is over the medium and long range, after many, many eyeballs have scrutinized particularly strategic pieces of knowledge. However, scientists work on the short range; they get rewarded almost as quickly as they manage to get published in the right journal. For this reason, journals really act as "quick-branding" devices, with all the ambiguities that can be attached to this expression.

Those who play a role in this quick-branding procedure are generally the editors and those who assist them, such as reviewers. Together, these scientists act as gatekeepers of the scientific enterprise and, quite obviously, they play a powerful role in the scientific publishing system. Together, they form a kind of oligarchy that runs the collective registry of branded new knowledge that is published in scientific journals. However, this oligarchy is also hierarchical, for the gatekeeper of a journal like *Nature* certainly carries a lot more clout than his/her colleague involved in some local or even national journal, or, given the role of English nowadays, some journal written in another language.

Building the Branding Hierarchy of Journals: Some Unexpected Consequences of the *Science Citation Index*

How did the branding hierarchy of journals emerge? A quick answer would say that the good select the good and this is enough to understand how science got its stratified structure. However, a closer look shows that some tools were quite useful in this regard. It also shows that this stratification appears to obey some very definite agendas.

Using once more an historical approach, it is easy to remember that Bradford's Law[2] was first designed to help librarians decide how to spend limited resources to be most useful to their particular constituencies. At first, it amounted to little more than a somewhat formalized observation of scientific customs: experience dictated that to follow a specialty most efficiently, a few "core" journals—5 to 10 in general—were enough. The same experience showed that collecting information more completely required much more work: an exponential growth in the number of titles surveyed only yielded an arithmetic increase in the number of useful articles.

Although a little discouraging for anyone inhabited with the passion for exhaustivity, Bradford's observation looked innocuous enough. For a given librarian, it meant that the needs of his/her local scientists could be well satisfied by looking at these individual title core lists and ensuring their presence in the local library. It was pragmatically common-sensical and did not appear threatening in the least.

The Second World War came and went. It brought about a few momentous consequences and many minor ones. Among the latter, the musings of Vannevar Bush and his hypertext prototype named "Memex" are among the best known, particularly in the world of libraries and the Internet. It also inspired Eugene Garfield's work that culminated in the establishment of the Institute of Scientific Information (ISI) and the development of the *Science Citation Index* (SCI).

It is not particularly important to recount to this audience what the SCI is about: most readers will be intensely familiar with this extraordinary bibliographic tool; many readers will also be aware of the scientometric possibilities opened by SCI. What is not so well known, however, is that the SCI could not have been elaborated without finding a credible, yet pragmatic, way to truncate all of science publishing down to a suitable subset that would be small enough to permit the systematic tracing of citations while being extended enough to appear as the credible quintessence of science. In effect, Garfield collapsed all the little "cores" detected through the Bradford law; he then proceeded to do a series of independent checks by referring to the coverage of major disciplinary bibliographies and by doing direct interviews of well-known scientists. The result was the building of a list of "core" scientific journals that suddenly took on a life of its own.

Originally, these core journals were mainly in the hands of learned societies and scientific associations. Commercial publishers, in the late '60s, still played a relatively minor, fragmented, and ultimately secondary role in the publishing of science journals, as they had essentially done since the middle of the 19th century. The motives of commercial publishers to sustain even this minor role in scientific publishing were limited to prestige reasons and to keep an eye on potentially interesting authors that might want to write a commercially lucrative textbook or an equally profitable treatise. Periodicals rarely brought in profits. However, with the sudden emergence of a core set of journals, publishers became aware of the fact that these journals would have to be bought by every library worth its salt. In other words, the previously vaguely prestigious, financially uninteresting field of scientific periodicals had become an inelastic market that could be milked for all it was worth. Periodical prices then began to climb precipitously.

The grip of commercial publishers over science periodicals led to two independent developments: while prices were climbing, a series of mergers rapidly concentrated the industry into very few hands. Now, a big player such as Reed Elsevier controls over 1,500 titles (since acquiring Academic Press via the purchase of Harcourt Brace); Taylor & Francis controls over 800 titles since its acquisition of Gordon and Breach. At the same time, publishers began making very important connections with scientists by helping create new journals, and thus opening the door to new nominations into the hallowed circle of gatekeepers. For the publishers, such a tactic had two advantages: while it allowed for tighter relationships with elite scientists, it also allowed for competition with similar journals available from other publishers that appeared to be vulnerable.

The Libraries' Response

Libraries quickly felt the newly induced pain, but they found it more difficult to convey a forceful and coherent message to the research circles or even the research administrators. It must be said that publishers did all they could to keep librarians atomized and to prevent them from publishing useful, shared comparisons. The endless legal actions undertaken by Gordon and Breach against University of Wisconsin physicist Henry Barschall in four countries are extreme, yet symptomatic, forms of what all publishers were trying to do: cajoling, obfuscating, and, if needed, threatening. Commercial publishers managed to create a very wealthy industry out of what had been a gentlemen's publishing club a few years before.

> *When librarians and scientists work hand in hand, the process of scientific communication … can fall back into academic hands—where it belongs anyway.*

In the end, frustration and anger did rise. Various counteractions were contemplated and some later implemented. Capping a decade of research, analysis, and discussion, in 1998 ARL established the Scholarly Publishing and Academic Resources Coalition (SPARC). SPARC's mission is to pursue various ways to reintroduce competition in this "market" that had been unwittingly transformed into a playground for particularly greedy commercial publishers by the advent of the notion of "core journals." SPARC's actions touch only a limited number of titles, but the concept of competition has been demonstrated to work and the hope is to see the demonstration catalyze an expanding movement in this direction. The success of SPARC's first publishing partnership with the American Chemical Society, *Organic Letters*, pitted as it is against Elsevier's *Tetrahedron Letters*, is indeed inspiring, as is the resignation of a whole editorial board from another Elsevier journal and its successful recreation within the auspices of Cambridge University Press. Elsevier, for its part, has been trying to assemble a new team of scientists to compete against the former editorial board—for Elsevier knows competition well—but the publisher is discovering that a scientific community may not remain so passive and pliant when it discovers some of the publishing world's harsh realities. All the financial inducements that a very rich company can command may increasingly appear hollow in this regard.

SPARC has repeatedly demonstrated that the big guys are not invulnerable, that counterattacks are possible, and that when librarians and scientists work hand in hand, the process of scientific communication (and all that it means for the evaluation of careers) can fall back into academic hands—where it belongs anyway. SPARC has also brought to light the fact that the relationship between librarians and some publishers is better characterized by the sound and fury of vicious battles, rather than the quiet and elegant atmosphere of an exclusive business club. That in itself is positive, as these publishers have no interest in showing that they are locked into struggles where they obviously do not play very palatable parts. In short, SPARC is doing much to remind all partners in research activities that the present situation of scientific publishing is anything but normal.

THE ADVENT OF DIGITIZATION AND THE INTERNET AND THE SECOND COUNTERREVOLUTION IN SCIENTIFIC PUBLISHING

The advent of digitization, coupled with the worldwide deployment of the Internet, has brought about a new communication and publication environment that is displacing print from many of its traditional functions. The process is already quite visible, as are some of its consequences. The arena of scientific publishing actually offers one of the most advanced examples of what to expect when digitization *cum* networks occurs: not only are the technical conditions of publishing deeply transformed, but also their legal, economic, and ultimately social dimensions. In short, a deeply transformative transition—a revolution in fact—is taking place: moving away from selling journal volumes through subscriptions and within the constraints of copyright law, commercial publishers, inspired by the software industry, have introduced licensing contracts. Libraries, as is now well understood, no longer own anything; they become mere "knowledge pumps" and instead of opening up a free, public space for readers, they find themselves saddled with the unlikely task of policing access to "legitimate users." The fact that publishers do not yet expect a close monitoring of who can or cannot use the local knowledge pump changes the situation very little. Having effectively managed to transform libraries into surrogate cops shows the extent of the publishers' advance; it also demonstrates that the digital revolution really amounts to a counterrevolution.

Hit by this unexpected development, libraries found themselves rather poorly equipped to respond effectively. The new contractual context required a level of legal talents that was rarely present among librarians, and the highest managerial echelons of large research libraries found themselves devoting an inordinate amount of time mastering and (hopefully) solving contractual matters that they had never encountered before. In the process, they discovered that they had to negotiate from scratch most of what copyright law for years had provided as a matter of course, such as fair use. Not surprisingly, the need to share experiences quickly became obvious and the realization that the large commercial publishers played on a scale that was inaccessible to most if not all libraries led to new and expanded roles for consortia. By pooling the resources of dozens of libraries—so went the thinking—some financial and therefore negotiating clout could be regained. However, the specificity of scientific publishing protects publishers: if you want to access journal X, journal Y simply will not do and X's publisher knows this well. As a result, the libraries' elbowroom is very limited and, correspondingly, the financial savings obtained through consortia seem to have been limited on the whole.

One of the more recent and most efficient consortia has been the Canadian project generally known in English as CNSLP (Canadian National Site Licensing Project). It has managed to inject an exceptionally high level of competition among publishers by sticking to an "all or nothing" strategy, by putting publishers on notice that the amount of money is limited, and by warning them that they have been ranked according to some internal formula such that, if they are high enough on the list, they may get one chance, but one chance only, at closing a deal. This strategy has led to some significant reductions in costs, but this success did come at a price:

- It was partially based on surprise, but that surprise will not occur twice. Next time, publishers will be ready.
- Deals closed cannot be stopped easily when renewal comes. Publishers know that, and will try to take advantage of this favorable context even though some price-capping agreements have been struck up front to soften the blow of renewal price increases.
- New deals can occur only if CNSLP sees its budget vastly expanded so as to move beyond the renewal of existing deals. Presently, this is only an optimistic hypothesis.
- It is a strategy based on the "big deal" approach. As Ken Frazier has pointed out, the privilege of selection by librarians is being forfeited by big deals.[3]

Of course, a consortium does not necessarily have to envision itself as the cure-all of all the needs of participating libraries; rather, it may see itself as the provider of an interesting subset of titles that are obtained for all participating institutions at a rather good price. Libraries can then complete their local collection needs according to the particular needs of the constituencies they serve. But this division of labor does not resolve the serial pricing crisis and it may even weaken consortia by putting a certain amount of emphasis on the fragmented nature of the demand emanating from a wide variety of institutions in a 64-library organization that is national in scope.

The experience acquired by CNSLP ultimately shows both the possibilities and the limitations of consortia. It also points to the need for consortia to keep closely informed of each other's results and strategies—a situation that publishers, once again, try to discourage by requesting a certain degree of discretion over the terms of signed deals. The main benefits of consortia, in fact, may lie more with the transformation of libraries from isolated collection fortresses into more and more networked (and hopefully collaborative) attitudes, than in any financial advantage. It may be that, through the experience of consortia, libraries are learning some of the tricks of distributed intelligence and this development may turn out to be more fundamental and important than the limited financial results obtained.

Consortia also raise troubling questions, of which two are particularly important:

- Consortia that accept big deals from very large publishers (such as Elsevier in particular) may end up offering their users a completely distorted vision of what science is doing. The case of OhioLink is patent in this regard. Thanks to a big deal with Elsevier, more than half of the articles they offer to their users come from Elsevier journals, even though Elsevier does not control more than 20-25% of the core scientific journals. One may assume that Elsevier articles, because over-represented in the available collection of articles, will be used more frequently than they would be if they constituted only 25% of the available corpus. One may further assume that if they are used beyond what would be normally expected, they will also tend to be cited more than would be normally expected. In other words, by offering big deals, big publishers can manipulate usage and even citation rates, and this translates into improved impact factors. In other words, consortia, through big deals, can help big publishers to promote their journals at the expense of other, smaller, publishers, while putting the consortia into the position of offering a distorted lens on science. Consortia, in effect, may unwittingly help create bad cases of cognitive astigmatism....

- Big publishers dealing with big consortia occupy an extraordinarily interesting observation post. Since Jeremy Bentham, these posts are often called "panoptic." At any moment, anyone located at the panoptic center can monitor the usage of articles through enough institutions to be able to draw interesting statistical inferences. Analyzing these results can probably be translated into an understanding of where interesting science is happening, where breakthroughs are likely to occur, etc.... All this, of course, translates into knowledge that can help policy making, industrial intelligence, or investment strategies. Governments would die to lay their hands on such data; governments should also beware of the fact that the usage statistics of the best labs and research institutions in their country are being closely monitored by private companies, many of them foreign.

> *...weakening the grip of commercial publishers over the evaluation process will take the form of diluting the power of journal titles as branding devices either by adapting the process to new forms of publishing and/or by revising the evaluation processes themselves...*

Open Archives and Other Subversive Initiatives
Scientists also took note of the digital transformations. While most quickly grasped the added ease to access and retrieve digitized articles, a few also started to experiment with new tools. This has led to a series of interesting projects, the most significant of which has been the Open Archives Initiative (OAI). OAI finds its roots in a physics preprint server launched in 1991 by Paul Ginsparg at the Los Alamos National Laboratory. Designed to create a faster, more efficient exchange of preprints—a working custom that is particularly among physicists (but not exclusively)—the Los Alamos server rapidly demonstrated that the communication phase of science was quite separate from the evaluative phase of science. That these two functions had remained confused together so long was largely because print demanded it. This decoupling between communication and evaluation also helped the community to realize that behind hundreds of core journal titles, big publishers actually deal with articles. As a result, journal titles appear tied to the branding process all the more exclusively.

The advent of Ginsparg's open archive led to a flurry of experiments corresponding to an astounding range of diverse and even contradictory (not to say conflicting) agendas. These experiments can be summarized as follows:

- Other equally open archives, e.g., in computer science and in economics, were established and work began on a protocol to suggest the interoperability of archives and on easily implemented metadata. This, in effect, summarizes the Open Archives Initiative (OAI) when it is seen as an attempt to generalize Ginsparg's project to all disciplines. Complementing the OAI is the self-archiving movement, interoperable with OAI, that is enriched by an "open citation" project (led by Stevan Harnad and others).
- There have been various attempts to convince journal editors to free their content after a certain period of time, such as the 90 days in University of Kansas Provost Shulenburger's NEAR proposal or the six months proposed by the Public Library of Science movement with its worldwide petition that garnered about 27,000 signatures until last September 1st. PubMed Central, launched at NIH by Nobel Prize winner Harold Varmus before he left for Sloan Kettering, also favored the creation of free content, but proceeded in a somewhat idealistic manner: it essentially tried to convince existing journals to give the store away. Not surprisingly, most refused and a few even protested loudly.
- New enterprises have been established to help learned societies and scientific associations gracefully manage their transition to digital publishing. They often propose a bundled basket of titles that really amounts to collections of articles: HighWire Press, Bepress, BioOne, MUSE, ICAAP, etc., are good examples of this trend. Each case is a bit different, the accent on scientific publishing varying from project to project, but they all share a certain respect for reasonable prices on journals, and they generally emphasize financial viability and sustainability over profitability. Some—for example, Bepress—even leave copyright in authors' hands. Others, like HighWire Press, try to free as much content as is possible after a certain period of time. Results vary from title to title.

- BioMed Central is yet another kind of animal: while it leaves copyright in the hands of the authors, and although it supports free access to an archive of refereed papers, it is actually a commercial outfit. BioMed Central was developed as a consequence of PubMed Central's lack of visible success, and in some ways it completes it. For example, most of the titles available within PubMed Central come from BioMed Central. BioMed Central's business plan, however, remains somewhat unclear beyond the usual references to publicity and the possibility of page charges for authors. Further services enriching the archive, such as cross-linkage, etc., are also promised for the future, and they will have to do it if they want to compete successfully against the parallel efforts extended by the commercial publishers across their individual offerings. BioMed Central's recent offer to provide refereeing services to authors who have signed the Public Library of Science—and who might find themselves in an uncomfortable position because only a dozen journals (more or less) have agreed to free their content within the (more or less) six months—is an interesting proposal in that it actually provides a clear alternative to journal branding (even though it largely retains this appearance).
- The most surprising experiment of all, ChemWeb, is an open archive of chemical preprints launched by none other than Reed Elsevier. Obviously, it is a device to keep Elsevier in touch with the open archives movement, and perhaps will be a potential tool to compete with the American Chemical Society. As noted above, *Organic Letters*, a SPARC-endorsed ACS journal, appears to be winning its competition against Elsevier's *Tetrahedron Letters*, and Elsevier is likely to be studying ways of challenging ACS. ChemWeb also seems to test various new ways of evaluating scientists' publications while offering them a greater visibility. As such, it is an experiment that must be followed closely, if only to follow commercial publishers' thinking on ways to counter the OAI and to develop their empire in an archive-based mode rather than a journal-title mode.

ChemWeb, although modest in its present scope (fewer than 300 articles are on its site as of this writing), is also symptomatic of a very important trend: publishers now realize that future competition in scholarly publishing will actually take place on the evaluation front. With the branding of quality now firmly linked to traditional, core journals, the big publishers have held a firm and majority grip on evaluation of researchers and their performance. This has translated into an almost unlimited capacity to boost journal prices to incredible levels. With digitization, they are already thinking beyond the licensing business—after all, that will last only so long—to plan new modes of market control. My hypothesis is that maintaining a dominant voice in the evaluation process will remain the publishers' trump card, however the process will be transposed, translated, or adapted. This strategy necessarily rests on maintaining a strong alliance with a significant set of elite scientists. Conversely, weakening the grip of commercial publishers over the evaluation process will take the form of diluting the power of journal titles as branding devices either by adapting the process to new forms of publishing and/or by revising the evaluation processes themselves, for example, by demonstrating that better evaluation processes exist and can be implemented.

TO CONCLUDE, SOME PROPOSALS THAT, ALTHOUGH MODEST, ARE ANYTHING BUT SWIFTIAN IN SPIRIT

We still stand in Oldenburg's shadow. Designed to register claims to originality, inventiveness, and creativity, the scientific journal has turned into a complex system totally enmeshed with commercial interests which have partially distorted its original functions. In particular, it has become ever more difficult to separate scientific excellence from financial elitism—a situation that has been particularly hurtful to third-world countries, but also to many institutions within richer countries. In particular, it has probably contributed to creating a "research divide" that ought to be closely investigated.

Librarians find themselves occupying a particularly strategic role in this context, and not only because they have suffered most from the state of affairs imposed by large commercial publishers through the two revolutions (or counterrevolutions) sketched out above. SPARC, of course, demonstrates a will to do more than adapt to a situation that, otherwise, would appear to be unavoidable, almost fateful in nature. However, SPARC is still young and it covers only some dimensions of scientific publishing. As a result, it ought to extend its tactics and several new objectives ought to be studied and, if suitable, pursued:

1. Librarians should stand squarely and strongly behind the OAI. In that spirit, they should support all initiatives that tend to liberate content either immediately or after a while. They should also negotiate long-term archiving of private, commercial digital journals with this objective in mind.

2. Open archives allow greater monitoring of the kind of articles being used and, as a result, the observation post that big publishers have been creating for themselves could no longer be monopolized by them. On the contrary, the usage statistics and their interpretation could become associated activities led by scientists, librarians, and specialists of scientometrics for the common good.
3. Open archives can also help develop new and better evaluation tools of researchers and their performance. Scientists should retain a leading voice in evolving these evaluation tools, in conjunction with administrators and with the support of research libraries. The point here is to ensure the development of better branding devices than the mechanical use of impact factors transposed from journal titles to scientific authors, and to dilute or weaken (not to be confused with destroying) the power of journal titles as branding devices.
4. Creating new gatekeeping devices and evaluation tools and organizing, as a distributed network of libraries, very wide forms of cross-linking are nothing but ways to reopen the traditional tasks of librarians in a new mode; they are ways to reassert the "epistemological engineering" function of librarianship in the context of cyberspace.

In the last 30 years, scientific publishing has witnessed a very dynamic situation characterized by a high degree of tactical and strategic initiatives, particularly on the part of commercial publishers who have shown themselves very creative in this regard. Simply reacting and adapting as best as one can to these new situations and contexts cannot lead to durable or even satisfactory solutions. More proactive attitudes must be developed that will bring researchers, librarians, and administrators into a new alliance where common strategies can be devised. These will not only counter commercial publishers' plans, but will even precede them as the balance of initiatives starts shifting back in favor of the academic and public research institutions. Librarians are uniquely poised to bring this new coalition into being.

— *Copyright © 2001 Jean-Claude Guédon*

ABOUT THE AUTHOR

Jean-Claude Guédon holds his doctorate in the History of Science from the University of Wisconsin, Madison, and is currently Professor of Comparative Literature at the University of Montreal. Professor Guédon is the founder of *Surfaces*, the first Canadian electronic scholarly journal still in existence, begun in 1991. His interest in both theoretical and practical issues regarding electronic publishing has led him to produce numerous papers on the subject as well as to present at conferences worldwide. Professor Guédon is not new to the research library community. In 1994, he presented a paper at ARL's Fourth Symposium on Scholarly Publishing on the Electronic Networks and he has been actively engaged in projects pushing the boundaries of scholarly communication, including serving on the steering committees of the Canadian National Site Licensing Project and the Digital Library of Electronic Theses and Dissertations.

ABOUT THE PAPER

Professor Guédon made a presentation on his ideas in May 2001 at the 138th Membership Meeting of ARL, a meeting held in conjunction with the Canadian Association of Research Libraries in Toronto. The presentation was received very positively and, as a result, Professor Guédon agreed to write a paper to encourage further discussion. His article in the October 2001 issue of *ARL: A Bimonthly Report* introduces the reader to his main arguments, but by no means takes the place of reading the full paper, *In Oldenburg's Long Shadow: Librarians, Research Scientists, Publishers, and the Control of Scientific Publishing*. The full paper is available on the ARL website <http://www.arl.org/arl/proceedings/138/guedon.html> and in print from ARL Publications <pubs@arl.org>. Both the article and the paper are published by ARL with permission of the author in order to stimulate further discussion and new thinking on the important issues that he raises.

Guédon, Jean-Claude. *In Oldenburg's Long Shadow: Librarians, Research Scientists, Publishers, and the Control of Scientific Publishing*. Washington, D.C.: Association of Research Libraries, 2001 (70 pp., $15, ISBN 0-918006-81-3).

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[1] See Mark Rose, *Authors and Owners: The Invention of Copyright* (Cambridge, Mass.: Belknap Press of Harvard University Press, 1995).

[2] Samuel C. Bradford, "Sources of Information on Specific Subjects," *Engineering* 137 (January 26, 1934): 85-6.

[3] Kenneth Frazier, "The Librarians' Dilemma: Contemplating the Costs of the 'Big Deal'" *D-Lib Magazine* 7.3 (March 2001) <http://www.dlib.org/dlib/march01/frazier/03frazier.html>.

THE IMPACT OF SERIAL COSTS ON LIBRARY COLLECTIONS

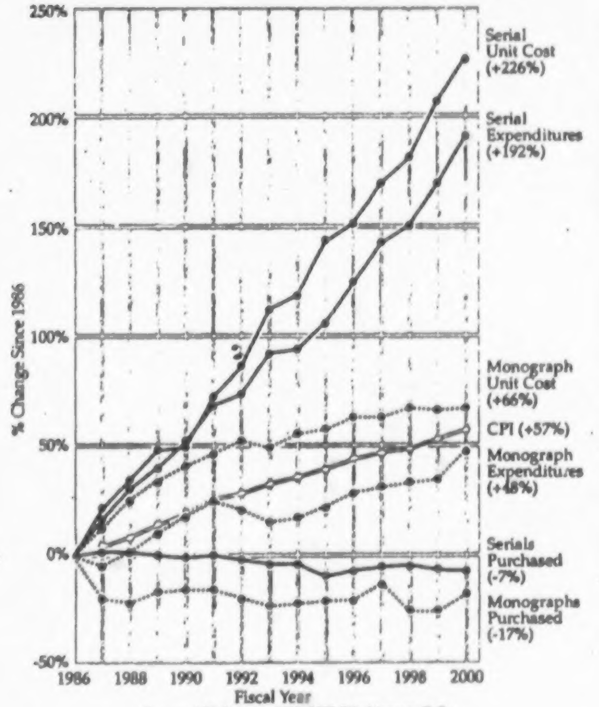
As Jean-Claude Guédon points out in his article, libraries were among the first to feel the pain of escalating prices that came as a result of the commercialization of scholarly journal publishing. For the last 14 years, ARL has collected data from member libraries to track the costs of serials and monographs and their impact on library collections. Since 1986, the average annual increase in the serial unit cost for an ARL library was 8.8%—amounting to a total serial unit cost increase of 226%. The result is that in 1999–2000, ARL libraries spent almost three times as much on serials as they did in 1986 and yet the number of titles acquired was 7% fewer. This seemingly moderate reduction in serial holdings reflects a certain amount of damage control; that is, many libraries have shifted funding from other parts of their budget to lessen the impact on serials. Monograph acquisitions, for example, have fallen from a median of 32,697 titles purchased in 1986 to 27,059 titles in 2000—a 17% decrease overall. On average and based on 1986 purchasing levels, this adds up to over 90,000 monographs forgone in each research library. (See accompanying graph, Monograph and Serial Costs in ARL Libraries, 1986-2000.)

Not all journal titles are equally expensive. Studies have shown that there is a "profile" of expensive journals that routinely post extraordinarily high rates of price increase. For example, the title is typically in the science-technical-medical (STM) area, where journals are the primary vehicle for the communication of scholarly information. Its publisher is likely to be a for-profit company as opposed to a not-for-profit society or association. More commercial publishers are finding how profitable journals can be: some social science journals are posting annual increases even greater than those in STM areas (see table, Average 2001 Prices for Journals in Selected Disciplines).

Every year, journals eat up more and more of the libraries' acquisitions budgets. A straight-line projection suggests that the average journal title, which cost $125 in 1986, will cost $1,158 in 2012. Simply to maintain serials collections at present levels, the average journals budget, currently $4 million, would have to increase to $14.28 million by 2012—over $3 million more than what the budget would be if it continued at its current rate of increase. Clearly, this price tag is not sustainable by the library market.

—*Mary M. Case*

MONOGRAPH AND SERIAL COSTS IN ARL LIBRARIES, 1986–2000



Source: *ARL Statistics 1999–2000* (Washington, D.C.: Association of Research Libraries, 2001).

AVERAGE 2001 PRICES FOR JOURNALS IN SELECTED DISCIPLINES

Discipline	Avg. Price per Title (2001)	% of Change 1997–2001
Physics	$2,011.13	30.47%
Chemistry	1,918.09	34.29
Engineering	1,142.84	43.20
Astronomy	1,083.91	16.94
Biology	1,064.33	34.53
Math & Computer Science	1,018.57	31.66
Technology	1,013.34	42.18
Geology	914.51	27.37
Zoology	866.03	39.21
General Science	830.55	48.30
Botany	790.28	25.93
Food Science	731.26	54.37
Health Sciences	728.14	38.89
Geography	682.29	38.87
Agriculture	529.22	19.77
Business & Economics	500.94	51.17
Psychology	326.00	46.73
Sociology	297.18	50.53
Anthropology	256.68	25.55
Political Science	254.19	54.34
Law	159.91	29.88
History	120.05	27.89
Art & Architecture	109.53	8.83
Music	79.94	19.40

Source: Born, Kathleen, and Lee Van Orsdel, "41st Annual Report Periodical Price Survey 2001: Searching for Serials Utopia," *Library Journal* 126.7 (15 Apr. 2001): 53–8. The data was derived from analysis of over 6,000 titles included in the three key Institute for Scientific Information (ISI) citation indexes.

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FROM EXPECTATIONS TO RESULTS: WHAT ARE WE FINDING, AND HOW ARE WE IMPROVING?

by Amos Lakos, Senior Liaison Librarian, Information Services and Resources, University of Waterloo

The America Association of Higher Education (AAHE) held its 15th annual Assessment Conference, "From Expectations to Results: What Are We Finding, and How Are We Improving?" June 23–27, 2001, in Denver, Colorado. The conference focused on assessment issues and activities in institutions of higher learning and attracted educators, institutional research professionals, managers, and librarians. The high attendance (over 1,800 participants) at the conference, the overall quality of the program, and the intense involvement of the participants signaled that assessment of academic and institutional outcomes, especially assessment of student learning, is a constant and mature concern in academe, and that universities and colleges are feeling pressured, especially from accreditation bodies, to deliver assessable learning outcomes.

AAHE Research Forum

For the first time in AAHE's history, the AAHE Research Forum was convened at the AAHE Assessment Conference. The forum is a platform and an opportunity for educators, researchers, and this time also librarians, to create a research agenda around the conference theme. This year's theme was "The Scholarship of Assessment." The invited research interest groups developed research agendas around the following six theme tracks:

- Demonstrating Student Learning
- Validity and Reliability of Alternative Assessment
- Technology and Assessment
- Transforming Institutional Cultures
- Creating Opportunities for Student Reflection Across the Curriculum
- The Role of the Faculty in Assessment

The themes show the multiple aspects of issues involving assessment in higher education. The Research Forum document is available from the AAHE website: <https://www.aahe.org/assessment/ResearchAgenda.pdf>.

Assessing Students for Citizenship in a Diverse Society

Dr. Sylvia Hurtado, Associate Professor and Director of the Center for the Study of Higher and Postsecondary Education at the University of Michigan, in her plenary address discussed a major project that sought to identify desired outcomes for a diverse society and explore institutional goals that prepare students for a diverse democracy. Among the findings of issues that affect student success on campus was the importance of critical thinking skills on learning and social interactions. Information about the Diverse Democracy Project is available at <http://www.umich.edu/~divdemo/>.

The Library, Information Literacy, and Partnering with Faculty

The academic library community presented four sessions. They all focused on library initiatives and activities that are designed to achieve student learning outcomes by focusing on integrating information literacy into the curriculum, developing ways to measure information literacy outcomes, developing partnerships with faculty, and creating a culture of assessment in libraries and across campus.

The ACRL Information Literacy Competency Standards for Higher Education were highlighted and examples of partnerships with faculty were presented. Library programs that integrate the ACRL Standards into the curriculum in partnership with faculty were presented by Debra Gilchrist (Pierce College), Janet DuMont (King's College), Anne Fiegen (California State University-San Marcos), Hannelore Rader (University of Louisville), Lyn Cameron (James Madison University), and Gregory Heald (University of Northern Colorado).

Carla Stoffle from the University of Arizona presented ARL's New Measures Initiative with emphasis on the Higher Education Outcomes Research Review, which is designed to develop new roles and responsibilities for university libraries in advancing student learning through outcome assessment. Efforts to make this all happen by developing a "culture of assessment" in libraries was presented by Amos Lakos from the University of Waterloo.

Conclusion

Although assessment in institutions of higher education is becoming a necessity, it is not yet well integrated into the organizational culture. External accreditation bodies still drive institutional assessment.

For academic libraries, this conference is of special value. It affords an opportunity to showcase libraries' commitment to learning outcomes and our considerable contributions to the educational endeavor to learning outcomes assessment. It is important to increase awareness about the work done on many campuses by librarians to integrate the competencies into the general curriculum as well as the efforts librarians make to assess student-learning outcomes. The 2002 Assessment Conference will be held in Boston June 20–23, 2002. For information, see the AAHE website at <http://www.aahe.org/assessment/2002/>.

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BUILDING A CULTURE OF ASSESSMENT

by Holly Grossetta Nardini, Service Quality Support Director, Yale University Library

Assessment is a critical tool for understanding library customers and offering services, spaces, collections, and tools that best meet their needs. Without good assessment, libraries could lose touch with users' desires and needs and even become irrelevant. This message is the core of the ARL workshop "Building a Culture of Assessment in Libraries: The New Imperative," which was offered at the Association of College and Research Libraries annual conference in Denver this past March. Shelley Phipps from the University of Arizona and Amos Lakos from the University of Waterloo made a convincing case for assessment and offered a mix of theory, practical discussion, and useful techniques and tools.

Some libraries assess their services because of external pressures like accreditation or institutional requirements. At Yale, we are moving to user-centered assessment to bolster traditional decision making. In the past, we have not depended heavily on assessment, although, like all libraries, we have toted up the standard measures of volumes, circulation, and questions answered. Like many of my fellow workshop attendees, I want assessment to routinely improve our services. Phipps and Lakos offered excellent tips for beginning to make those changes—tips drawn from management literature and theory, and also from practical experience in assessment-intensive institutions.

One barrier to developing a culture of assessment is that culture, by its very nature, is stable and resistant to change. Phipps and Lakos led a provocative discussion about organizational culture and presented the work of Edgar Schein, asking, "Do libraries put in place the processes and structures that support our values?" The group agreed that librarians are often attracted to the profession to "do good" and are accustomed to thinking that we know what that "good" is. Going beyond this aspect of our culture, and hearing the voices of our customers, is part of cultural change.

The workshop culminated in a discussion of a systems model for organization design. A 180-degree shift from traditional library organization charts, this model acknowledges the contributions of the environment, suppliers, and customers. A systems model considers all aspects of an organization and shows movement towards the institutional mission and values. The workshop highlighted the importance of administrative support for assessment, proper infrastructure, a rewards program, comprehensive training, and support for the risk-taking necessary to achieve success.

From covering the basics of why libraries should be involved in assessment to explaining how our organizations could be better designed to focus on our users and environment, Lakos and Phipps packed the workshop with information and techniques to lead similar discussions at our own institutions. Perhaps most useful to me was observing how Phipps and Lakos used their delivery, questions, and tools to energize an (obviously self-selected) group of librarians about how to begin to tackle this daunting topic. Their emphasis on innovation and removing barriers to change struck a chord in most attendees.

Workshops like this one give us opportunities to reflect on new ways to work and can push us toward the future—one where effective assessment can help us stay relevant in a time of great change. Meeting many other librarian colleagues who will be working on similar plans was an added bonus of the day. Good assessment requires different types of data and a full picture of the institution and the marketplace. By cooperating, benchmarking, and learning from each other, we will begin to build a culture of assessment within the library community.

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ARL LEARNING OUTCOMES PROJECT LAUNCHED

The goal of the Learning Outcomes Project within the ARL New Measures Initiative is to help identify measures that libraries can use to demonstrate their contribution to campus learning outcomes. At a meeting in October 2001, the Learning Outcomes Working Group reported on their data-gathering efforts for institutions, accrediting agencies, and other organizations engaged in outcomes assessment and discussed learning outcomes assessment activities conducted on research library campuses.

The group decided to focus on the following activities:

- Identify commonly used learning outcomes from working group campuses, particularly those used for general education requirements, and determine if an instrument could be developed to be used across libraries to assess those outcomes.
- Identify potential national student surveys to which specific library questions could be added and construct those questions for testing at the next survey cycle.
- Develop plans for offering workshops that address both the process for becoming engaged in campus learning outcomes assessment activities as well the specific skills needed to work with faculty on developing learning outcomes for research universities.

Contact Julia Blixrud <jblix@arl.org> for more information about the project.

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ARL CALENDAR 2002

January 7–11	Web Development with XML *Charlottesville, VA*
January 20	Using LibQUAL+ Results *New Orleans, LA*
January 21–22	LibQUAL+: A Total-Market Survey *New Orleans, LA*
February 7–8	**ARL Board Meeting** *Washington, DC*
February 15–17	ARL/OCLC Strategic Issues Forum *Las Vegas, NV*
March 7–8	Our Collections: How to Preserve Them in Times of Rapid Change *University of Michigan/ARL* *Ann Arbor, MI*
April 15–16	CNI Spring Task Force Meeting *Washington, DC*
May 22–24	**ARL Board and Membership Meeting** *Los Angeles, CA*
July 22–23	**ARL Board Meeting** *Washington, DC*
October 15–18	**ARL Board and Membership Meeting** *Washington, DC*

ARL & SPARC AT ALA

ARL and SPARC events and exhibit information for ALA's 2002 Midwinter Meeting (held in New Orleans January 18–23) are now available! Visit <http://www.arl.org/arl/ala02m.html> for more information.

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ARL

A BIMONTHLY REPORT ON RESEARCH LIBRARY ISSUES AND ACTIONS FROM ARL, CNI, AND SPARC

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LIBRARIES MEET THE WORLD WIDE WEB: THE COLLABORATIVE DIGITAL REFERENCE SERVICE

by Diane Nester Kresh, Director for Public Service Collections, Library of Congress

Imagine a reference service where a patron in a public library in the United Kingdom can query an online system and get reference help from a librarian at a public library in southern California ... all within a matter of hours ... sound hard to believe? It is exactly what is possible with the Collaborative Digital Reference Service (CDRS).

What is CDRS?

CDRS provides professional reference service to researchers anytime, anywhere, through an international, online network of libraries and related institutions. Launched by the Library of Congress in June 2000, CDRS now includes more than 200 member libraries—academic, public, special, and national—worldwide and that number is growing weekly. The collaboration has been very beneficial in that each library brings its professional experience, knowledge of user behavior and needs, and subject expertise to bear on the project.

CDRS uses technology to provide the best answers in the best context, by taking advantage not only of the millions of Internet resources but also of the many more millions of resources that are not online and that are held by libraries around the world. CDRS supports libraries by providing them additional choices for the services they offer their patrons. Libraries can more ably assist their patrons by sending questions that are best answered by the expert staff and collections of CDRS member institutions from around the world.

An advisory board, comprised of representatives from CDRS member institutions, meets to discuss policy and future directions of the program. Business meetings with member representatives are also regularly held to get feedback, report on and solve work flow problems, discuss training and performance measures, and build esprit de corps. The CDRS homepage posts general information and news links, information for members and project milestones. An electronic mailing list allows members to communicate frequently with one another, get technical questions addressed, and comment on the efficacy of the network.

The World at Your Fingertips

At no other time in history has the emergence of technology affected so significantly the core mission of a library. These technological advances have created new service opportunities for libraries and library patrons. For information to have relevance, it must be up-to-date and receive the hands-on touch of the skilled reference librarian to provide context and added value. Through the CDRS network, LC and its partner libraries can serve researchers everywhere and, in so doing, bring control, context, greater choice, and timeliness to the world of information.

CDRS includes two component parts: submission of a question and answer, and archiving the answer for future use. The workflow looks like this: An end user requests information through a CDRS member institution. The member institution sends the query to the online Request Manager (RM) software for processing and assigning. The RM searches a database of CDRS member institution profiles looking for the institution best suited to answer the question. Once a match on an institution has been made, the query is sent to that institution for answering. After the query has been answered, it is routed back to the original CDRS requesting library via the RM to allow for closing out the case and completing other administrative tasks.

The library profile is the core of the routing and assignment activity, and each institution can "code" itself as broadly or as narrowly as it chooses. Library profiles contain basic information about the library, including hours of service (and time zones), collection strengths, staff strengths, education levels served, languages covered, geographic location of users served, whether there are special services provided and what they are—as many as 28 data fields. This information is captured in a table, where it is used by the online RM to sort, assign, and track incoming questions and to deliver answers to the end user. Further, the profile tool is flexible enough to allow for regular updating to reflect staffing changes or special circumstances that would affect the automatic routing by the RM. For example, if the astronomy specialist is on sabbatical for several months and no back-up is available, the library might choose to remove that subject strength from its profile until the staff member returns.

Answers are edited and stored in a separately searchable knowledge base of information. The knowledge base, to be populated with the diverse and authentic information provided by CDRS librarians, will ultimately serve as a front end to CDRS, designed to "catch" and answer incoming questions if there is a ready match. If there is no match on the knowledge base, the question will be routed through the RM and assigned to a library.

CDRS Implementation

The implementation process began by defining a concept of operations by which CDRS would work on behalf of its members. For example, the advisory board agreed that CDRS is a membership model; CDRS builds its infrastructure once and shares that cost among its members so all can afford to use the service; CDRS is open and members need only Internet access, a browser, and e-mail to use it; quality is considered number one and policies, certification, and Service Level Agreements (SLAs) are enforced to ensure that the brand lives up to the market's expectations; the technology platform is built to serve the membership as a whole; and, finally, CDRS is an international service that does not give preferences to certain jurisdictions or members.

We also initiated a series of pilots to test the technical solutions. Pilot 1 had two principal goals: to test the effectiveness of the library profiles and to test a web form for submitting questions. Results indicated that more standardization of the data elements was needed, for example, agreement on use of a standardized tool—such as a truncated version of the Library of Congress Classification schedule—to describe a library's subject strengths. All of the libraries contributed edited sample questions and answers that were sent through the system according to a scripted schedule.

In Pilot 2, we added more institutions worldwide, increased the number of questions asked of the system, revised the profile database, and began to experiment with software packages to serve as the Request Manager.

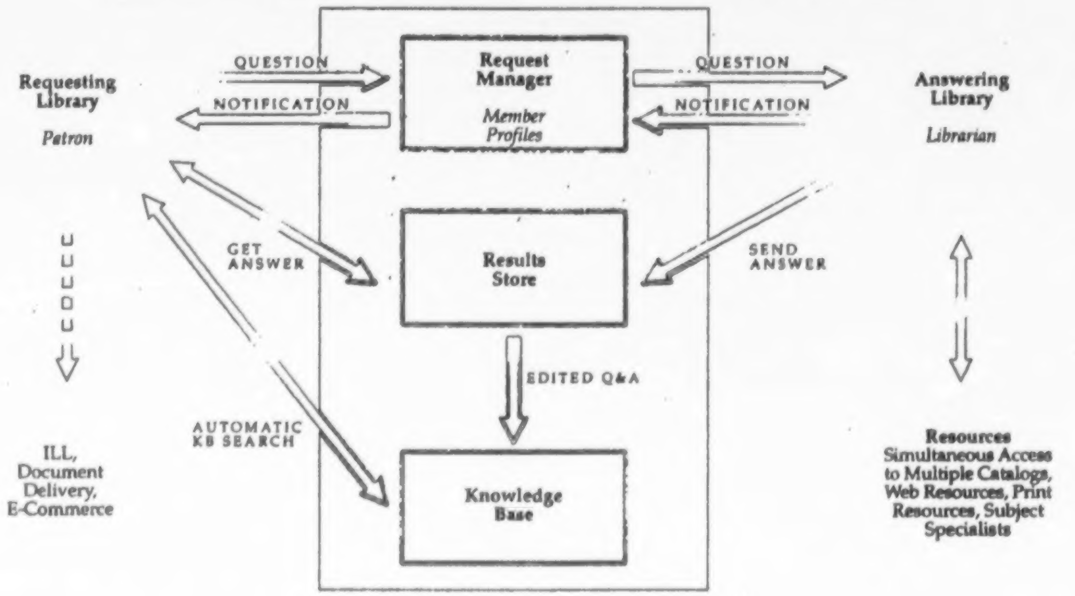
CDRS Accepts All Comers

There are no restrictions on the types of libraries that can participate. Size of a library or collection is not a factor in determining whether a library can become a member. The aforementioned Service Level Agreement defines the nature of the member library's relationship to the CDRS and that agreement is codified in the library profiles. Many types of agreements are possible and are limited or expanded depending upon the strengths (e.g., subject) or limitations (e.g., staffing or hours of service) of the individual library. For example, a library may agree to ask and answer questions; only ask questions; ask or answer questions only during specified periods; serve as an editor for the knowledge base; or serve as the on-call library if the automatic Request Manager function is inoperable. In addition, many libraries have local collections that are unique to them. These local, specialized collections make a potent contribution to CDRS overall, filling special niches that larger research institutions may not be able to fill.

In addition to defining roles and responsibilities among the partner libraries, the SLAs will ultimately be used to determine what it will cost a library to be a member of CDRS. While the pilot is underway, CDRS is free. However, we have been examining a variety of funding options with the goal of being as flexible as possible, both to allow for the broadest participation among types of libraries and to ensure that no one library or group of libraries has to bear all of the costs of establishing and sustaining CDRS. To that end, we conducted a series of marketing surveys, both in person through interactive sessions and online, to develop potential cost models. These sessions provided valuable information to the planners, affirming support for a service through which credentialed experts provide high-quality information and affirming a willingness to pay for such a service.

The Value Proposition

We have encouraged maximum flexibility in developing the many component parts of CDRS. For a library to want to participate, CDRS has to be perceived to have value. Just as there are no "one size fits all" libraries, so too are there no "one size fits all" arrangements with CDRS. Libraries are structured and organized differently, they have different local audiences, and they have different policies and procedures for ensuring quality control. To be useful to a library, CDRS must fill an unmet need and offer something that the library does not already have, e.g., adequate staff, a subject strength, or a special collection unique to a participating library that the whole collaboration then has access to. When the participating library defines the terms of that value, that library will


COLLABORATIVE DIGITAL REFERENCE SERVICE PROCESS

Requesting Library
Patron
QUESTION
NOTIFICATION
Request Manager
Member Profiles
QUESTION
NOTIFICATION
Answering Library
Librarian
GET ANSWER
Results Store
SEND ANSWER
EDITED Q&A
AUTOMATIC KB SEARCH
Knowledge Base
ILL, Document Delivery, E-Commerce
Resources
Simultaneous Access to Multiple Catalogs, Web Resources, Print Resources, Subject Specialists

have greater incentive to make the arrangement work, for itself and for CDRS. Our job is to create the tools; the library then decides for itself how to make the relationship work.

Where to Next?

Currently, libraries participating in CDRS connect with other libraries on behalf of patrons so that the libraries can conduct the reference interview before sending the question, define the parameters of the service, determine what works and what does not work, and create a service that is scalable and maximally responsive to user needs. From the beginning, however, we have envisioned that CDRS will become a service that is available directly to patrons, recognizing that many individuals never go to their local library but still need information. Over the next several months, we will work with our members as we begin to define the direct-to-patron interface. Eventually, we hope to build a service that provides one-stop shopping for reference and information.

In January 2001, the Online Computer Library Center (OCLC) and the Library of Congress, on behalf of CDRS member libraries, signed a cooperative agreement to guide CDRS through its next phase of development. OCLC will provide technical and development support to CDRS by building and maintaining a database of participating institution profiles that will route questions and answers through CDRS; building and maintaining a question-and-answer database system that will enable CDRS participants to catalog answers and store them in a searchable and browsable database; and providing administrative support for CDRS, including marketing the service, registering new members, and providing training and user support. Together, the Library of Congress and OCLC will develop a viable model for a self-sustaining digital reference service and promote CDRS in the library community.

We continually examine our technical solutions to ensure that we have the right ones to meet our mission, and that the tools we have created are easy for librarians to use. As we look to expand globally and become a true 24/7 service, there are many issues we must examine: language and literacy, service to local populations in their own language, acceptable Internet access and technical infrastructure support mechanisms for a worldwide constituency, cultural and political sensitivities, and e-commerce and trade agreements that may affect pricing models. The solutions to these issues will determine the long-term success of CDRS.

Current information about CDRS, including how to participate, can be found at <http://www.loc.gov/rr/digiref/>.

CHAT REFERENCE: AN EXCITING NEW FACET OF DIGITAL REFERENCE SERVICES

by Jana Ronan, Interactive Reference Coordinator, George A. Smathers Libraries, University of Florida, Gainesville

It's 9:55 a.m. and time for me to log on for my 10 a.m. reference chat shift. I click on an icon on my computer's desktop, the chat program opens, and at the prompt I enter my user ID and password. Once connected, I greet the librarian that I am relieving, David, using the chat program's instant messaging feature. Shift transitions on our chat service are much like the transitions at the reference desk. We greet each other and talk about the questions that are being asked that day, to prepare the person coming on for duty. David tells me that he had a question from a student experiencing trouble connecting to FirstSearch. We discuss the intricacies of campus networking for a while, then David excuses himself and logs off the chat service. Now, any incoming questions will be routed to me. I close my office door, settle in my chair and wait for the questions to trickle in.

It's Monday and I have a mountain of e-mail sitting in my inbox, so I decide to browse through them while I wait for users to log on and ask questions. I open my e-mail program and start reading messages, leaving the chat program running, but minimized. After a couple of minutes, a tone sounds and *RefeXpress* generates a window that opens on top of the e-mail that I am reading. The window tells me that a user named Steve G. has connected. Steve's question is, "I'm trying to find *Applied Physics Letters* online. Can you help me?" I click on the button labeled "accept" and am assigned Steve's chat session. After greeting Steve with a friendly, "Hello Steve. I'm Jana," I click on the "information" button to see what I can find out about this user. Steve has a university e-mail address and is using Internet Explorer 5.5, but is he a student, a faculty member, or staff? Is he talking to me from a computer on campus or from somewhere else? With digital reference, you never know. "So, Steve," I type in the chat window, "Do you know if *Applied Physics Letters* is a journal? Can you come into the library if I find that it's not online?" Steve explains that he is a UF graduate student, temporarily located in Tennessee working on a research project and that he really needs online access to *Applied Physics Letters*. "Okay," I respond. "Let me see what I can find. It might take a couple of minutes for me to find the answer. " After a rapid search of a couple of databases, I find that the journal is available online. "Steve. Good news." I type into the chat. "You can get the journal online." Using the web browser that is built into the chat software, I send (push) the Smathers Libraries' home page to Steve so that he can see it on his computer screen. Confident that we are both looking at the same web page, I show him step-by-step how to find the journal on our website. I talked a user through this same procedure yesterday, on the telephone at the reference desk, but it is so much easier to explain the answer when you can control what the user sees on their computer screen. We spend another couple of minutes discussing how the local authentication works until it becomes clear that Steve has the information he needs. "Have I answered your questions?" I ask. "Yes, thank you," types Steve. "Please come back if you need more help with anything." Steve logs off. Satisfied, I return to reading my e-mail and wait for the next user to log on for help.

We welcome all kind of questions in our chat service, *RefeXpress*, at the University of Florida. And, as you might suspect, advice on tracking down e-resources is a fairly typical question. But the questions we get cover the gamut of subject areas, just as at the traditional reference desk. What all chat sessions have in common is that they are initiated by users who need help at the moment that they experience the trouble. Chat reference—or "real-time reference," as it is also called—delivers immediate reference assistance via computers and synchronous communication software. This communication is in real time, so that librarians may talk to the user, determine what the user needs, and offer answers while connected with the user. But perhaps another definition would be helpful. The online dictionary Webopedia <http://www.webopedia.com/> defines chat as, "Real-time communication between two users via [a] computer. Once a chat has been initiated, either user can enter text by typing on the keyboard and the entered text will appear on the other user's monitor."

As late as 1999, only a handful of libraries were experimenting with delivering reference assistance via synchronous, real-time technology. These innovative services included the Internet Public Library's Reference MOO, TalkBack at Temple University (ZBServer software), and an experiment with computer-based videoconferencing at UC-Irvine. For the most part, however, the audience for these early services was limited to astute computer users, as one was required to install and/or to learn specific software to reach librarians. Today there are a variety of web-based software programs or hosted services that are much more user friendly. These programs create an interface where users need only a web browser to connect, thus enlarging the potential audience to anyone with a computer.

It's hard to count the number of academic libraries offering real-time reference services, because libraries are adding chat to their arsenal of outreach methodologies at such a rapid rate. However, an informal survey of library websites revealed that libraries are exploring chat reference at various levels of commitment, depending upon their budgets and visions. The major factors that influence the level of investment an institution can make are software and hardware costs (including laptops for telecommuting librarians), staffing/hours issues, and training. Some libraries are offering experimental services that are open only a couple of hours a day and use inexpensive software, while others are committed to 24/7 service, delivered via sophisticated call center software from the corporate sector. The Alliance Library System in Illinois is an example of a 24/7 academic cooperative.

> *If you see a substantial number of e-mail questions being posted at times when reference service is being offered at in-house service points … you may have a base of remote users that would benefit from chat reference.*

Would your users benefit from a chat service? As when planning any new public service, it is helpful to conduct a needs assessment to look at the type of Internet connectivity that your users have and when they are using library resources. Does your library serve undergraduate users, a population that uses chat frequently? (In September, the Internet and American Life initiative of the Pew Research Center <http://www.pewinternet.org/> reported that 41% of 12–17 year old students use instant messaging or chat to get help with schoolwork.) What hours do your users access your library website? When are they asking e-mail reference questions? If you see a substantial number of e-mail questions being posted at times when reference service is being offered at in-house service points, for example, you may have a base of remote users that would benefit from chat reference. A strong commitment to distance learning at your institution may be another reason to consider adding chat reference services.

When choosing software, there are a large number of chat software programs and services on the market to choose from. Choices range from inexpensive or free chat programs—such as AOL Instant Messenger, Yahoo! Chat, or ConferenceRoom—to the sophisticated, feature-rich call center software—e.g., NetAgent, eGain, and Live Person—used to deliver rapid customer and technical service on business websites. Libraries also have the option of installing the software on their own computer networks or having it hosted by a commercial vendor or by a free service such as Yahoo! Chat. Each approach has its associated challenges, including response time, maintenance issues, and control over the user interface (do you really want advertising on your chat reference page?). While expensive call center software may be out of reach for a smaller library's budget, many libraries are banding together in consortia to purchase software and to collaboratively staff virtual reference desks. The Biblioteksvagten consortium of academic and public libraries in Denmark, using Live Person, is one example. Many libraries are purchasing hosted service from companies named LSSI or 24/7 Reference that offer use of NetAgent or eGain software at a reduced price, and even librarians to staff your service, if staffing is an issue. If you are interested in reading more about the types of software that are available, *The Teaching Librarian* <http://pages.prodigy.net/tabo1/digref.htm> offers a very readable exploration of the functionality and features of the various types of software. But let me share some specifics about the chat-based virtual reference service we have developed at the University of Florida.

RefeXpress, the George A. Smathers Libraries' real-time reference service, is powered by an eShare Communications software called NetAgent <http://www.eshare.com/>. After evaluating a wide variety of software, we settled on NetAgent because of several advanced features that allow librarians to work more closely with users. In addition to the chat space, some of these features are:

- Users do not need special software to connect, only a Java-enabled web browser, such as Netscape Communicator, Opera, or Internet Explorer.
- A powerful client to help librarians answer questions quickly.
- The ability to show users web pages on their screen (push page).
- The ability to escort a user through a web search.
- Private messaging between librarians (independent of the chat space).
- A database of phrases that librarians frequently employ with users (e.g., "How may I help you?"); files of handouts, etc.; and web pages, any of which may be transmitted to a user with a couple of clicks
- Transcripts that are automatically mailed to users.
- Easy statistical reporting.
- An accompanying e-mail module that has streamlined our e-mail reference service.
- VOIP (voice over IP) capability.

You have seen the librarian's perspective of a chat session, but what does a session look like to the user asking a question? Users can connect to *RefeXpress* from the logo prominently featured on the UF Libraries' homepage <http://www.uflib.ufl.edu/>, from help links on navigation bars peppered throughout the library website, or directly at this URL: <http://refexpress.uflib.ufl.edu/>. After clicking on the link to *RefeXpress*, a splash or welcome page displays hours and information about the service and a "Go!" button. Users fill in a name, an e-mail address, and their question, and click on the "submit" button. A small pop-up window announces that the user is connected, followed by an automatic greeting, "Welcome to *RefeXpress*! A librarian will be with you shortly." Once the librarian reads the question and connects with the user, the next thing the user sees is a split screen that is half active web browser and half chat window. As the librarian helps the user, or sends a page to the user, it is displayed in the top part of the screen, while comments or instructions on what to look at on the page are displayed in the chat window below. At the end of the session, the last page that the user sees is an online chat satisfaction survey.

RefeXpress is a true collaborative effort, developed and staffed by reference librarians across all seven Smathers libraries. While some institutions have created new positions to staff their real-time reference services, the Smathers Libraries has taken the approach of working chat into the responsibilities of their existing reference librarians. Generalists and subject specialists from reference, collection management, and resource services units from the seven libraries work an average of two hours a week monitoring the chat service for the 56 hours a week that the service is open. A coordinator manages the training and day-to-day operations, assisted by the e-mail reference coordinator and the chat planning team.

The service has received very positive feedback from students, faculty, and other users, and usage is growing. We receive a broad variety of questions in the service, ranging from help with connecting to and searching databases to requests for facts and assistance with research projects. These questions are not different from those asked at our reference desks or via e-mail; they only vary in the medium in which they are asked.

There are many challenges in setting up a chat reference service, not the least of which is selecting and installing usable software and marketing the new service to your users. But, in my experience, the real challenges are overcoming staff resistance to a new and unfamiliar service, teaching effective online communication, and training librarians to field questions outside their areas. One of our librarians, an accomplished reference librarian, commented that working in *RefeXpress* reminded her of her first day working at a reference desk, and the anxieties and fears of not being able to answer questions or work with users. While one way to work around some of these issues is to create new lines and recruit experienced chat librarians to staff the service, you miss tapping into the considerable knowledge and reference skills of your existing librarians if you take that route. All of these challenges can be addressed by training and experience with working on the service. It is important to give staff ample time to practice their skills before going online, and to provide them with a safety net for their first few shifts (coordinators provide the net in our service by being online and accessible during new chat librarians' first shifts). Our librarians work as a team, and it is not uncommon for the chat librarian on duty to call a reference desk or a colleague for assistance in answering a question, in troubleshooting a connectivity issue, or to refer a question. It is also important to realize that not every question that begins in a chat session is best answered via chat. Sometimes it is more effective to e-mail the answer, to ask the user to come to the library, or to refer the question. Chat reference is a convenient and very effective way to extend reference services to users outside the library, and requires the same kind of teamwork that keeps the traditional in-library reference desk operating smoothly.

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FORTHCOMING FROM SPEC

In 2002, Jana Ronan, Interactive Reference Coordinator, and Carol Turner, Associate Director for Public Services, of the University of Florida Libraries will conduct an ARL/OLMS SPEC survey and analysis of interactive online reference services being delivered by ARL libraries.

NISO ISSUES REPORT ON NETWORKED DIGITAL REFERENCE SERVICES

In April 2001, the National Information Standards Organization (NISO) convened a workshop on Networked Digital Reference Services. The workshop was attended by a diverse group of stakeholders representing the library and information community who explored what standards are needed to facilitate the development and implementation of Digital Networked Reference Services that can operate across international and geographic boundaries. A report on the workshop is available and includes summaries of and links to nine presentations given in open session and three discussion group sessions on protocol issues, knowledge base issues, and profiling issues. The report also identifies stakeholders who should be involved in next steps, existing models that may help in developing appropriate standards, and a group of interlinked standards that might be developed. The report is available on the NISO website <http://www.niso.org/news/reports/netref-report.html >.

STATISTICS AND MEASUREMENT

Martha Kyrillidou, Senior Program Officer

A BRIEF LIBQUAL+™ PHASE ONE PROGRESS REPORT

by Fred Heath and Colleen Cook, Texas A&M University, and Bruce Thompson, Texas A&M University and Baylor College of Medicine

The Association of Research Libraries (ARL) New Measures initiative grew out of a recognition that "A measure of library quality based solely on collections has become obsolete" (Nitecki 181). One of these initiatives is the LibQUAL+™ research and development project.

LibQUAL+™ is an ARL/Texas A&M University joint effort. This project is also supported, in part, by a three-year grant from the U.S. Department of Education's Fund for the Improvement of Post-Secondary Education (FIPSE).

During the 1999–2000 academic year—"phase zero" in the FIPSE grant proposal—LibQUAL+™ was completed on the Web by 4,407 participants from 12 ARL institutions. This form of the protocol involved 22 items from the well-known SERVQUAL instrument (cf. Parasuraman, Berry, and Zeithaml; and Parasuraman, Zeithaml and Berry, "A Conceptual Model" and "Alternative Scales"). Respondents also completed 19 trial items that were developed following qualitative analysis of library user interviews at nine universities (Cook and Heath). These trial items were developed in order to measure service quality features unique to the library setting.

A series of articles was published reporting analyses of the 1999–2000 data (a bibliography of these reports may be accessed at <http://www.coe.tamu.edu/~bthompson/servqbib.htm>). Following these analyses, the survey instrument was further refined and revised.

In the spring of 2001, during project phase one (2000–01), a 56-item version of the LibQUAL+™ protocol was completed by 20,416 participants from 43 campuses. Of these 43 libraries, 35 are ARL members.

A series of reports associated with the LibQUAL+™ instrument used in 2000–01 (cf. Cook, Heath, and Thompson; Heath, et al.; and Thompson, Cook, and Thompson) indicate that:

- The LibQUAL+™ instrument can be pared down to a 25-item survey that yields reliable scores on four scales (*Service Affect*, *Library as Place*, *Personal Control*, and *Information Access*) as well as on the total scale.
- The factor structure underlying responses matches the expected structure.
- Both individual and institutional normative tables for converting scale and total scores into standardized scores and percentile rank scores can be (and have been) developed.
- Scale and total scores correlate highly with perceptions of service quality, but not with collections count measures, such as ARL Membership Criteria Index scores, as expected.

Based on these promising results, during project phase two (2001–02), library users from 170 institutions will participate in the survey. Further information about the project may be accessed via <http://www.arl.org/libqual/>.

References

Cook, Colleen, and Fred Heath. "Users' Perceptions of Library Service Quality: A 'LibQUAL+™' Qualitative Study." *Library Trends* 49.4 (2001): 541–47.

Cook, Colleen, Fred Heath, and Bruce Thompson. "Score Norms for Improving Library Service Quality: A LibQUAL+™ Study." *Portal: Libraries and the Academy* (2001). [manuscript submitted for review]

Heath, Fred, et al. "ARL Index and Other Validity Correlates of LibQUAL+™ Scores." *Portal: Libraries and the Academy* (2001). [manuscript submitted for review]

Nitecki, Danuta A. "Changing the Concept and Measure of Service Quality in Academic Libraries." *The Journal of Academic Librarianship* 22 (1996): 181–90.

Parasuraman, A., Leonard L. Berry, and Valerie A. Zeithaml. "Refinement and Reassessment of the SERVQUAL Scale." *Journal of Retailing* 67.4 (1991): 420–50.

Parasuraman, A., Valerie A. Zeithaml, and Leonard L. Berry. "A Conceptual Model of Service Quality and Its Implications for Future Research." *Journal of Marketing* 49.4 (1985): 41–50.

— "Alternative Scales for Measuring Service Quality: A Comparative Assessment Based on Psychometric and Diagnostic Criteria." *Journal of Retailing* 70.3 (1994): 201–30.

Thompson, Bruce, Colleen Cook, and Russell L. Thompson. "Reliability and Structure of LibQUAL+™ Scores: Measuring Perceived Library Service Quality." *Portal: Libraries and the Academy* (2001). [manuscript submitted for review]

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LIBQUAL+™ SPRING 2001 NORMS AVAILABLE

An initial set of norms from the spring 2001 survey is now available. The tables are based on the survey results from over 20,000 library users in 43 institutions. With this data, libraries may compare their own scores with those of peer groups or subgroups. To view the norms and for more information, visit <http://www.coe.tamu.edu/~bthompson/servnorm.htm>.

MEASURES AND STATISTICS FOR RESEARCH LIBRARY NETWORKED SERVICES: ARL E-METRICS PHASE II REPORT

by Wonsik "Jeff" Shim, Charles R. McClure, and John Carlo Bertot, Information Use Management and Policy Institute, School of Information Studies, Florida State University

The E-Metrics project, one of the ARL New Measures Initiatives, is an effort to explore the feasibility of defining and collecting data on the use and value of electronic resources. ARL has some experience in tracking expenditures for electronic resources through the *ARL Supplementary Statistics*, but there is a widely held recognition that more work needs to take place in this area. A group of 24 ARL libraries funded and participated in a study that took place from May 2000 to December 2001. The project was under contract with Florida State University's Information Use Management and Policy Institute and was directed by Charles R. McClure, Wonsik "Jeff" Shim, and John Carlo Bertot under the leadership of project co-chairs, Sherrie Schmidt, Dean of University Libraries, Arizona State University, and Rush Miller, University Librarian and Director, University of Pittsburgh.

In October 2001, the project team completed the Phase II report that presents the findings from the field-testing of various statistics and measures and presents a list of recommended ones. The complete report is entitled "Measures and Statistics for Research Library Networked Services: Procedures and Issues: ARL E-Metrics Phase II Report" and is available on the ARL website <http://www.arl.org/stats/newmeas/emetrics/index.html>.

This study provides one approach, a beginning approach, for describing and measuring some of the resources, uses, and expenditures for supporting networked services in a research library setting. Such statistics and measures are essential for collections decisions; cost analysis; justification of services; services planning and evaluation; and a host of other activities. The Phase II report presents a *first* effort to accomplish these objectives and to standardize data collection techniques, definitions, and procedures related to networked and electronic resources and services.

Recommended Statistics and Performance Measures

Based on a substantial field-testing process (described in detail in the report), the project team recommends the following network statistics (Table 1) and performance measures (Table 2). The statistics and performance measures provide indicators of library networked services and resources.

The performance measures are composite and/or combinations of the network statistics along with, in some cases, non-network statistics already collected by ARL libraries (e.g., number of visitors to the library).

TABLE 1 RECOMMENDED STATISTICS

Patron Accessible Electronic Resources	R1	Number of electronic full-text journals
	R2	Number of electronic reference sources
	R3	Number of electronic books
Use of Networked Resources and Services	U1	Number of electronic reference transactions
	U2	Number of logins (sessions) to electronic databases
	U3	Number of queries (searches) in electronic databases
	U4	Items requested in electronic databases
	U5	Virtual visits to library's website and catalog
Expenditures for Networked Resources and Related Infrastructure	C1	Cost of electronic full-text journals
	C2	Cost of electronic reference sources
	C3	Cost of electronic books
	C4	Library expenditures for bibliographic utilities, networks, and consortia
	C5	External expenditures for bibliographic utilities, networks, and consortia
Library Digitization Activities	D1	Size of library digital collection
	D2	Use of library digital collection
	D3	Cost of digital collection construction and management

Using the Network Statistics and Performance Measures

The recommended network statistics and performance measures, either independently or in some combination, can assist research libraries in describing a number of aspects of their networked resources and services. There is a section in the report that provides libraries with some guidance regarding the use to which the network statistics and measures can be put.

ARL libraries may currently collect measures that can provide some indication of the success of a particular program or service provided to customers, such as user satisfaction surveys. However, it is important to think broadly—with the desired state in mind—and not simply use the measures at hand because they are easy to collect or because a lot of time and effort has been devoted to collecting them.

In most cases, a single measure on its own is not enough to indicate whether a research library is successful in a given area. To accurately indicate the success or quality of an academic library, measurement should be implemented at three key levels: outcome level, use/capacity level (output), and resources level (input). (See Table 3 for illustrative questions at each level.)

Given the rapidly changing technology environment, the changing milieu affecting higher education, changing organizational structures within ARL libraries, and the complexity of measuring such networked services, it is almost certain that the statistics and measures proposed in this study will continue to evolve. The measurement tools offered in the Phase II report, however, will provide research librarians with important techniques to count, describe, and report networked services and resources in their libraries.

ARL LIBRARIES SPEND NEARLY $100 MILLION ON ELECTRONIC RESOURCES

Overall expenditures for purchasing electronic resources have increased from an estimated 3.6% of library materials budget in 1992–93 to 12.9% in 1999–2000. In 1999–2000, 105 ARL university libraries reported spending almost $100 million on electronic resources, an increase of close to $23 million from the previous year. A total of $9.5 million in additional funds was spent on behalf of 38 ARL libraries through centrally funded consortia. The vast majority of electronic resource spending is on electronic serials and subscription services. Document delivery/interlibrary loan services account for $11 million spent by 101 ARL libraries. Detailed data and tables are available in the *ARL Supplementary Statistics 1999–2000*. This publication is a useful benchmarking tool for libraries; information industry analysts can also judge the extent and growth of the electronic publishing market. The collected data is not found elsewhere. *ARL Supplementary Statistics 1999–2000* is available online at: <http://www.arl.org/stats/sup/sup00.pdf>. Printed copies of this publication are available for $100 ($44 ARL members) from the ARL Publications Distribution Center, P.O. Box 531, Annapolis Junction, MD 20701-0531 <pubs@arl.org>, or order online at <http://www.arl.org/pubscat/order/index.html>.

TABLE 2 RECOMMENDED PERFORMANCE MEASURES

Performance Measures	P1	Percentage of electronic reference transactions of total reference
	P2	Percentage of remote library visits of all library visits
	P3	Percentage of electronic books to all monographs

TABLE 3 USING MEASURES TO ANSWER QUESTIONS AT DIFFERENT LEVELS

Outcome Level	**Use/Capacity Level (Output Measures)**	**Resource Level (Input Measures)**
What are the results of a program or process?	How much is a service, resource, or program being used?	What do we need to ensure success?
How successful or effective is the library?	Who is using a service, resource, or program?	What funding level is appropriate or necessary for a particular program?
How effective do customers perceive your programs to be?	Why are people using a particular program?	Do we need more of a particular resource in order to have a more effective program?
What beneficial effects are you having on your customers?		
How could a program be changed to better suit the needs of your customers?		

ARL ACTIVITIES

G. Jaia Barrett, Deputy Executive Director

ARL MEMBERSHIP CONVENES

One hundred and four member institutions were represented at the 139th ARL Membership Meeting held in Washington, D.C., on 17–18 October. Shirley K. Baker (Washington in St. Louis), ARL President, convened the meeting with a discussion on "E-Metrics: Preliminary Findings from the ARL Project." A panel of Carla Stoffle (Arizona), Rush Miller (Pittsburgh), and Sherrie Schmidt (Arizona State) brought the membership up to date on the status of work on E-Metrics (see article on page 8). Following this presentation, there were concurrent discussions on the following topics:

- Learning Outcomes, Research Outcomes, and Institutional Accreditation
- Managing Digital Library Programs & the Impact on Preservation
- Libraries in a Digitized, Commercialized Age
- The Role of Accreditation in Achieving High-Quality Library Education and a Proposal for an Independent Accrediting Body
- Shaping an ARL Agenda for Special Collections
- AUL Job Configurations and Hiring for Technology Positions

Background papers and a summary of most of these discussions now appear on the ARL website <http://www.arl.org/arl/proceedings/139/>.

The Federal Relations Luncheon featured a briefing by Thomas Susman, Ropes & Gray, on anti-terrorist legislation and its impact on libraries.

Elections

During the Business Meeting, Ms. Baker announced that the ARL Board on October 16th elected Fred Heath (Texas A&M) as Vice President/President-Elect of ARL. Also at the Business Meeting, the membership elected three new Board members to serve three-year terms. They are Joseph Branin (Ohio State), Frances Groen (McGill), and Brian E. C. Schottlaender (UC-San Diego). Continuing members of the Board are Nancy Baker (Iowa), Shirley Baker (Washington in St. Louis), Fred Heath (Texas A&M), Paula Kaufman (Illinois at Urbana), Sarah Michalak (Utah), Paul Mosher (Pennsylvania), Sarah E. Thomas (Cornell), and Ann J. Wolpert (MIT).

At the conclusion of the Business Meeting, Ms. Baker presented the gavel to Paula T. Kaufman, who began her term as ARL President. Ms. Kaufman acknowledged the contributions of four Board members whose terms expired this October: Meredith Butler (SUNY, Albany), Kenneth Frazier (Wisconsin), Joseph Hewitt (North Carolina, Chapel Hill), and Carolynne Presser (Manitoba).

The 140th ARL Membership Meeting will be held May 22–24, 2002 at the Fairmont Miramar Hotel in Santa Monica, California. The meeting, hosted by UCLA and USC, will feature a program on fund-raising and recruitment.

ARL CONVENES FORUM TO EXPLORE COLLECTIONS & ACCESS ISSUES FOR THE 21ST CENTURY SCHOLAR

On October 19–20, 2001, ARL sponsored "Collections & Access for the 21st Century Scholar: A Forum to Explore the Roles of the Research Library." The Forum explored new approaches to collection management and machine-assisted access strategies that could increase the visibility of research library collections to students and faculty who are increasingly using the Web to conduct research.

Teams from 45 libraries brought 144 library leaders together in the one-and-a-half day forum. The meeting produced a valuable list of ideas for how ARL and other agencies could address these issues in a collaborative setting. Speaker presentations and notes from the discussion sessions are available on the ARL website <http://www.arl.org/forum.html>. An ARL task force will be established to examine the action ideas that emerged from this forum and to make recommendations for how they may be pursued.

ARL PUBLISHES CASE STUDY OF E-JOURNALS

ARL is pleased to announce the availability of *Electronic Ecology: A Case Study of Electronic Journals in Context*, by Karla L. Hahn. In 1998, the ecology community was at the very earliest stages of developing a new communications system. Two new peer-reviewed journals were starting up in quite similar subject areas: one electronic only and the other publishing both print and electronic versions simultaneously. This study compares and contrasts the views of the editors who solicit and select material to publish in these two journals and the authors of content.

Through interviews with authors, editors, publishing staff, and journal readers, this study answers three questions:

1. What is the process that authors use to decide to publish in an electronic journal?
2. How do social factors influence the author's decision to publish in an electronic journal?
3. How do the authors and editors working closely with an electronic journal perceive electronic journals?

The study also looks to the future of emerging publishing systems and highlights the importance of some of the functions developing in electronic publishing systems. An extensive bibliography is included.

Electronic Ecology *is available for $45; visit <http://www.arl.org/pubscat/best.html> to order.*

TRANSITIONS

UC-Riverside: James Thompson is retiring as University Librarian. Venita Jorgensen has accepted the position of Interim University Librarian effective January 2, 2002. She is currently Assistant University Librarian for Public Services.

Cincinnati: Victoria A Montavon was named Dean and University Librarian effective October 1, 2001. She was previously University Librarian at Wright State University.

Colorado State: Camila Alire announced her resignation as Dean of University Libraries effective January 1, 2002; Julie Wessling was named Interim Dean with responsibilities for all external duties and Carmel Bush was named Operations Dean to manage all internal library operations.

Hawaii: Diane Perushek was named University Librarian effective December 2001. She was previously Assistant University Librarian for Collection Management at Northwestern University.

Missouri: James A. Cogswell was named Director of Libraries effective April 15, 2002. He is currently Team Leader for Collection Development and Management at the University of Minnesota.

National Agricultural Library: NAL continues to rotate the role of Acting Director. Sally Sinn will replace Maria Pisa effective December 3, 2001 for a two-month term.

New York State: Liz Lane announced her retirement as Director effective the end of October 2001; Mary Redmond is Interim Director.

South Carolina: George Terry asked to step down as Dean of Libraries effective August 15, 2001. John Olsgaard, Associate Provost and Professor in the USC Library School, is Interim Dean.

Southern Illinois: David Carlson was named Dean of Library Affairs effective September 1, 2001. He was previously Director of Libraries at Bridgewater State College.

Texas Tech: Donald Dyal was named Dean of Libraries effective December 1, 2001. He was previously Associate Dean for the Libraries of Texas A&M University.

ARL Staff Transitions

Jonathan D. Sousa joined ARL in October as Technical Applications Development Manager for New Measures Initiatives.

Other Transitions

American Library Association: William R. Gordon, Executive Director of ALA since March 1998, will resign August 31, 2002, to begin his retirement.

National Endowment for the Arts: President Bush announced his intent to nominate Michael Hammond, Dean of Rice University's school of music, to be the new chairman of the NEA.

HONORS

Mary Jackson, ARL Senior Program Officer for Access Services, will serve a two-year term on IFLA's Governing Board as an elected member of the IFLA Professional Committee.

SPARC received the Service to Not-for-Profit Publishing Award from the Association for Learned and Professional Society Publishers.

GEORGE D. TERRY, 1950–2001

Dr. George D. Terry, Vice Provost and Dean of Libraries at the University of South Carolina from 1991 to 2001, died unexpectedly of a stroke on October 20, 2001 while on vacation at Cape Hatteras, N.C. He was associated with the University of South Carolina for more than 30 years. In 1988, he was named Dean of Libraries and became active in ARL. Most recently he served on the ARL Research Collections Committee and on the Committee on Nominations in 1998. During the summer of 2001 he announced his decision to step down from his position at the University of South Carolina Library and return as a full-time member of the library faculty. Memorials may be made to the University Foundations for the Southern Heritage Endowment, USC Educational Foundation, 900 Assembly Street, Columbia, SC 29208.

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ARL CALENDAR 2002

January 7–11	Web Development with XML	*Charlottesville, VA*
January 20	Using LibQUAL+ Results	*New Orleans, LA*
January 21–22	LibQUAL+: A Total-Market Survey	*New Orleans, LA*
February 7–8	**ARL Board Meeting**	*Washington, DC*
February 15–17	ARL/OCLC Strategic Issues Forum	*Las Vegas, NV*
March 7–8	Our Collections: How to Preserve Them in Times of Rapid Change	*University of Michigan/ARL* *Ann Arbor, MI*
March 12–15	Library Management Skills Institute II: The Organization	*Seattle, WA*
March 13–14	Project Management Institute: Getting Things Done or Getting the Outcomes You Want	*Washington, DC*
April 15–16	CNI Spring Task Force Meeting	*Washington, DC*
May 22–24	**ARL Board and Membership Meeting**	*Los Angeles, CA*
July 22–23	**ARL Board Meeting**	*Washington, DC*
October 15–18	**ARL Board and Membership Meeting**	*Washington, DC*

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